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Abstract

To develop and field test new assessment procedures for the 1969-70 Head Start national evaluation, a list of existing tests measuring selected social and emotional variables was compiled. Tests were selected on these criteria: (1) conceptual soundness, (2) relevance for preschool children, (3) whether disadvantaged children might be expected to show a deficit compared to their advantaged peers, and (4) the degree of overlap with the cognitive domain. The variables and respective tests finally selected were (1) curiosity: Curiosity Box subtest of the Cincinnati Autonomy Test Battery (CATB), (2) frustration: Michigan State University Puzzle Box Task based on the Keister-Updegraff task, (3) sociometric status: Play Situation-Picture Board Sociometric Technique, (4) self-concept: Brown IDS Self-Concept Referents Test, the Self-Social Constructs Test, Preschool Self-Concept Test, and Experimental Photographic Self-Concept Test, (5) delay of gratification: The Mischel Technique, (6) task persistence: Persistence subtest of the CATB, and (7) impulsivity: Motor Impulsivity subtest of the CATB. Other variables identified but not examined in depth were sex-identification, dependency, anxiety, and aggression. The authors discuss each of the assessment instruments and give field testing results. (MH)

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SOCIAL-EMOTIONAL TASK FORCE

FINAL REPORT

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We also wish to express our appreciation to all of the professionals who so willingly gave of their time in responding to our requests for information concerning their work.

Finally, we wish to acknowledge the extensive and diligent efforts of Dr. Lois-ellin Datta in guiding the task forces work and aiding us in completing our assigned tasks. Working with professionals of this calibre is indeed a privilege.

Robert P. Boger
Sarah S. Knight

Overview

The Task

The social-emotional task force was originally charged with developing and field testing new assessment procedures for the 1969-70 Head Start national evaluation.

Recognizing that many instruments existed which might be appropriate to the area of concern, and which were already in a more nearly finished state than could be achieved for a new test, the work of the task force has evolved. It has become the development and/or further study of a group of early childhood social and emotional assessment techniques, and the field testing of each instrument within the appropriate Head Start population.

Procedures

The task involved several phases. The first was concerned with a general search of the literature; communication with professional people and research centers in areas relevant to early childhood social and emotional behavior; and contact with specific instrument information sources.

The second phase involved identification of specific instruments for further study and variables for which assessment techniques might be developed. The third phase involved instrument development and field testing.

Literature Search

The following is a bibliography of the general literature sources used in the task:

Annual Review of Psychology
Child Development Abstracts and Bibliography
Dissertation Abstracts
Education Index
Education Index
ERIC Clearinghouse for Documents on the Disadvantaged
ERIC Clearinghouse for Early Childhood Education
Handbook of Research Methods in Child Development, P. H. Mussen, Ed.
Head Start Research Reports
International Bibliography of Marriage and Family
Measurement Resources in Child Research, O. G. Johnson
Mental Measurements Yearbooks, Buros, Ed.
NSSE Yearbooks
Perspectives on Human Deprivation: Biological, Psychological, and Sociological, The National Institute of Child Health and Human Development
Projective Techniques for Children, Rabin and Haworth
Psychological Abstracts
Review of Child Development Research, Hoffman and Hoffman, Eds.
Review of Education Research
Science Information Exchange
Sociological Abstracts

Specific literature sources are referenced with the instruments discussed in the annotated list in Chapter 2.

Instruments and Techniques

The annotated list of social and emotional instruments played a major role in our task. The list is also of interest in its own right, however, and therefore it has been included as a separate chapter in this report.

Selected Variables and Their Measures

The task force examined the annotated list of instruments and information and recommendations derived from the professional contacts and literature sources at a November meeting. This led to the identification of both instruments and variables to be researched in depth.

The February task force meeting served to narrow the variable and instrument list to those appropriate for field testing and possible recommendation. The areas for final consideration were selected on the basis of four criteria: 1) conceptual soundness, 2) relevance for preschool children; 3) whether disadvantaged children might be expected to show a deficit relative to their advantaged counterparts; 4) the degree of overlap with the cognitive domain.

The social and emotional variables, and potential measures of them identified as a result of the February meeting were:

1. Curiosity: the willingness to explore, manipulate, investigate and discover in relation to novel stimuli. Measurement: Techniques used by P. Minuchin[1], the Cincinnati Autonomy Test Battery Curiosity Box subtest.
2. Frustration: the ability to cope with the emotional condition arising from thwarting, preventing the receipt of a reward or of reaching a goal. Measurement: The Keister-Funich puzzle box, or an adaptation of it.

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[1] Minuchin, Patricia. Processes of Curiosity and Exploration in Preschool Disadvantaged Children. Final Report, OEO Contract No. 2403, Bank Street College of Education, June, 1968.

3. Sociometric Status: a quantitative reflection of the subject's position within a social structure. Measurement: The Play Situation-Picture Board Sociometric Technique.
4. Self Concept: in very general terms, the way one views himself. Measurement: The Brown IDS Self Concept REferents Test; the Self-Social Constructs Test; the Preschool Self Concept Picture Test, or a new Photographic Self Concept Test.
5. Delay of Gratification: the ability or willingness to delay gratification, to defer immediate reinforcement for the sake of later but more valued outcomes. Measurement: The Mischel Technique.
6. Task Persistence: attention to a problem with solution-oriented behavior when the goal is specified. Measurement: The Cincinnati Autonomy Test (CATB) Battery subtest on persistence and resistance to distraction.
7. Impulsivity: tendency not to restrain motor activity when the task demands it. Measurement: the Motor Impulsivity subtest of the CATB.
8. Other variables identified but held for in-depth examination at a later time:
   a) sex identification
   b) dependency
   c) anxiety
   d) aggression

   Measurement: The It Test or a modification of it might be used for variable 'a'; the others appear to require an observation technique such as the ones currently being developed at Educational Testing Service.

Field Testing

Several different populations were used for field testing. Two of them involved urban midwest Head Start classes, and the third involved rural midwest Head Start classes. The self concept instruments were field tested in urban and rural settings, and all other instruments were used with the urban classes.

Three instruments, the puzzle box, the Self-Social Constructs Test and the Mischel Technique, were field tested on one of the urban samples and the Cincinnati Autonomy Test Battery subtests were used in the other urban sample. In some cases there was already considerable data available on the instrument, and the purpose in field testing these was to gain more current, detailed information.

The two self concept instruments administered to the rural population were given on the same day, as a test battery lasting between 10 and 20 minutes. The order of instrument presentation was the Brown followed by the Woolner. The puzzle box, self concept test and Mischel Technique were administered as a battery involving about 20 minutes testing time. These instruments were always presented in the order: Self-Social Constructs Test, puzzle box, Mischel Technique.

The CATB subtests were administered in the order in which they occur in the test battery.

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Report Format

Each instrument is presented as a chapter in the following report, with the exception of the CATB subtests, which are presented together. The background for the instrument, its description, available technical information and field test results are presented within each chapter.

Instruments and Techniques

The various instruments and techniques are roughly grouped by the variables which they involve. The groups reflect only a convenient method of organization.

Social Variables: Self Concept

Brown Self-Concept Test, by Bert R. Brown. This test is for preschoolers (four year olds). It is an individual test, used to assess self-concept of the subject, his perception of self and significant others. It has 14 bipolar adjective items to which the subject is asked to respond in terms of self perception, mother's, teachers' and peers' perceptions of himself. It includes the use of a photograph of the subject which was the same one as was used for the 1967-68 Play Situation-Picture Sociometric Technique. Test-retest reliability ranges from r ≒ .71 to .76 on the self-referent items. The most up-to-date information is computed, but not yet available. A specimen set is available.

Check Sheet of Opportunity in Human Relations, by Ruth Cunningham, et al. The check sheet is for upper elementary to adult in age group. It is a checksheet-questionnaire, with 40 activities which each subject is to rate as to frequency of his participation, and how valuable he perceives the activity to be for self. No reliability validity information is available.

Children's Self-Concept Index, by D. Helms, et al. The index is for early elementary grades and was used in the Westinghouse Head Start National Impact Study. It is a paper and pencil, group instrument.

The subject marks the one of two choices which is "most" like himself. Test information may be available from the authors. A specimen set is available.

Preschool Self-Concept Picture Test by Rose Woolner. This test is for preschoolers. It has 2 sets of picture plates, 1 for Negroes and 1 white. Each set has 12 plates, showing 2 antithetical pictures of children. The subject is asked which picture is like himself, which his mother would pick, which his teacher would pick, and which would he like to be like. The test has a reliability ranging from r = .85 to .93 (KR 20): item analysis data is "all significant at .01." Concurrent validity data has been gathered, but is not yet analysed. The test has been standardized. A specimen set is available.

Children's Self-Social Constructs Test, by Henderson, Long and Ziller. This test is individually administered to preschoolers; other forms have been developed for subjects from elementary school children through adults. The subject indicates his choice of various pictures by pasting a label, representing himself, with a particular stimulus. The stimulus persons (pictures) are mother, father, friends, and his teacher. There are a number of trials with each of the stimuli. The test items involve identification, dependency, esteem, realism color, realism size (the latter two are done with circles instead of pictures for stimuli). One set of items forms a forced-choice, ipsative scale. There is a specimen set available.

Lipsitt Self-Concept Scale for Children, by L. P. Lipsitt. The scale is for grades 4-6 and is a self rating scale, with a Leikert type scale. It consists of 22 trait descriptive adjectives, prefaced by "I am_______" and "I would like to be_______." A discrepancy score is used to reflect the degree of dissatisfaction with self. The test-retest reliability ranges from r = .73 to .91 for the self-concept scale, and r = .57 to .75 for the discrepancy scores. A specimen set is available.

Perception Score Sheet, by A. W. Combs and D. W. Soper. (From Cooperative Research Project No. 814, University of Florida, 1963.) The score sheet is for ages 5 and 6. It is an observation schedule, to measure perceptions of self and others. The subject is rated on a 5 point scale in 39 areas. Areas such as perception of self (the self generally, with other Ss, with adults, with teachers); perception of the school and its curriculum; of others (peers, adults, teachers, etc.) are included. The instrument has a high internal consistency reliability; the 'general adequacy' factor accounted for 67% of the variance.

Thomas Self-Concept Scale by Walter Thomas. This is not the exact title, and a specimen set is not yet available. The scale is for pre-schoolers, and has had previous use with these age subjects.

What Face do You Wear? by George H. Farrah, et al. (Kindergarten Academic Self-Acceptance Inventory). This test asks the kindergarten child to indicate one of the "masks" with various expressions he would wear when_______. The test measures failure avoidance, goal needs and self adequacy. There is a specimen set available and test information may be available from the author.

Social Variables: Social Interaction/Perception of Others

Classroom Social Distance Scale, by Ruth Cunningham, et al. This scale is a nomination questionnaire for upper elementary school children. Each subject rates each other subject in the classroom on a 5 point scale, whose points are each defined. There is a correlation with CA of .036 to .345; with IQ of .48 to .26; and with SES of -.37 to .09.

Cooperation Game, by Millard Madsen (Psychol. Rpts., 1967, 20, 1307-1320). This instrument is designed for second graders. The children are given the task of cooperating or competing to draw a line across a designated place, using an apparatus of a board with a small eyelet at each corner. A child is stationed at each corner, and pulls a string through the eyelet toward himself. Four strings are attached to a common object in the center of the board; each child can pull in only one direction. The center object supports a pen which draws the line. No test information is currently available.

Hackett's Sociometric Technique, by Wally Reichenberg-Hackett (J. Humanistic Psychology, 1963, 3, 44-59). This is a sociometric for preschoolers. It involves behavioral observations of the subject in a play situation. On the basis of recorded observations, a sociogram is constructed, bringing into focus the subject's interactions in the play group, and the type of social contact the subject initiated or invited. A quantitative, as well as qualitative, analysis of social behavior can then be made. There is only some content validity evidence.

Minnesota Sociometric Interview, by Shirley Moore, et al. The sociometric interview is for preschoolers. It is a nomination technique in which the subject designates another child by pointing to the other child's picture. There is a specimen set available, but no test information is currently available.

Mummery Scale of Ascendant Behavior, by D. V. Mummery (CD, 1947, 18, 40-81.) This scale, developed in 1943, is for preschoolers. It is an observational technique concerned with the subject's attempts to attain or maintain mastery of situations, where mastery is: securing desired materials from companions, attempting to defend self and possessions and activities, and to resist master. It is also concerned with success on the foregoing. There is a 5 minute observation period, with verbatim recording from a controlled play situation involving 2 children. The observed behaviors are classified in 79 categories under 6 headings. Reliability with the Spearman-Brown correction range from r = .80 to .85. Observer reliability on a single pairing ranged from r = .91 to .92. Validity information consists of expert opinion and correlations with teacher ratings. The latter is very low, but the number is not reported.

Play Situation Picture Board Sociometric, by R. Boger. This individual test for preschoolers is designed to measure the subject's ability to relate effectively to others in his peer group. The 1968 modified version has a head and shoulders photograph and 5 play situations from which the subject is asked to choose 3. He is then asked to choose a peer to play with in each of the situations. There is no test information available yet on the 1968 version, but the reliability for the 1967-68 version was $r \approx .60$, and the picture selection matching in test-retest was significantly different from chance using a Kolmogorov-Smirnov test at $p \leq .01$.

Racial Attitude Test, by Williams and Robinson (Ed and Psychol Meas, 1967, 27, 671-689). The test, for preschoolers, uses a Semantic Differential technique to assess the connotative meanings of colors. It involves pictures of animals of various colors, and asks "which_______ is good?" "which_______is bad?" etc., with the adjectives generally being those from the original Semantic Differential data. No test information is available.

Role Perception, by Hartley and Krugman (J. Psychol., 1948, 26, 399-405). There is some question as to the ages of the subjects; the instrument may be outdated. It is a pictorial interview with a booklet of 22 pictures. Questions about people in the pictures paves the way to similar personal questions. No test information is available.

Teacher-Child Interaction, by E. Kuno Beller. This instrument is for preschoolers. It consists of a series of observation categories: the child's initial behavior, the teacher's responses, and the reaction of the child to the teachers' responses. Data is obtained in 6 consecutive 15-minute observations, in 2 instances of the daily education program, where free play was used primarily. No test information is currently available. Information on the observation categories is available.

Social Variables: General

California Test of Personality, by Louis P. Thorpe, et al. This 1953 paper and pencil instrument is for ages 5 to adult. It yields 16 scores: self-reliance, sense of personal worth, sense of personal freedom, of belonging, ...antisocial tendencies...to the total social adjustment. It has been standardized. Test information can be obtained from 5.38 in Buros,

Mental Measurements Yearbook.

Life Situation Structured Interview, by Estvan (El. Sch. J., 1966 377-385). The instrument is for preschoolers and measures social perception via a projective type interview. The interview is based on a series of 14 "life situations" (rural and urban community situations), depicting 10 basic social functions such as conservation of natural and human resources. The interview has 3 parts: the subject is shown a slide and asked what story the picture tells; then the subject is shown the same pictures in an 8" x 11" format and is asked to pair them with happy, sad, and neutral pictures of children; finally the subject chooses the 2 pictures that are best-liked, the 2 that are least-liked and explains his choices. No test information is available.

Social Behavior Scale, by Becker and Krug (CD, 1964, 35, 371-396). This is a revised older scale. The scale, for kindergarten children, involves 72 bipolar, 7 point rating scales with antonym pairs defining the extremes. Ratings are done by the parents and the teacher. No test information is available.

Social Development Scales, by W. Emmerich (part of a study concerned with continuity and stability for early social development, CD, 1964, 35, 311-332). This is a time-sample observation technique. Factor analysis of the data yielded 3 bipolar scales: interpersonal-impersonal orientatation; positive-negative attitude; and active-passive mode. No further test information is available.

Videotape Socialization Scale, by the Michigan State University Head Start Evaluation and Research Center, R. Boger, et al. In this scale, observation ratings and videotaping are done concurrently. There are preliminary videotape assessment scales available but the scale is still being developed.

The Vineland Social Maturity Scale, by Edgar A. Doll (Educational Test Bureau). The last publication of the scale was in 1953, and no changes have been made since that time. A modified form (see B. M. Levinson, Parental achievement drives for preschool children, the Vineland Social Maturity Scale and the social deviation quotient. J. Gen. Psychol., 1961, 99, 113-128.) was used in a recent study. The scale is used for ages birth to maturity. It measures social competence and personal social maturity, using 8 categories of social development. The categories are: self-help general, self-help eating, self-help dressing, locomotion, occupation, communication, self-direction and socialization. No test information for the modified form is available.

Social Variables: Miscellaneous

Embedded Figures Test, by H. A. Witkin. This test is for ages 10 and up to measure field independence, cognitive clarity, perceptual mode, general disposition to articulate and structure experience. While the instrument is largely cognitive, it may have social implications. The subject is shown a complex figure card, then the imbedded figure and asked to find the figure in the complex one. Perhaps it is not appropriate. The median reliability is r = .905. The item difficulty has a wide range.

Teacher Observation Schedule, by Shirley Moore, et al. (Minnesota). The schedule is for use with preschoolers. The Observation Schedule involves categorizing teacher verbalizations as directive, elaborative, eliciting, and miscellaneous. No test information is currently available, but the observation schedule can be obtained.

Social-Emotional Variables

The Baumrind Test, by D. Baumrind (Gen. Psy. Mono., 75, 43-88). This test is for preschoolers. It uses an observation technique with rating scales to assess subjective mood, self-reliance and peer affiliation. It is also concerned with some parental variables. No current test information is available.

Bronfenbrenner Parent Behavior Questionnaire, by Urie Bronfenbrenner. For grades 4-6, the questionnaire assesses the subject's perception of how his parents treat him. The subject rates 45 statements of parental treatment of self, using a 7 point scale. Rating is done once for the mother and once for the father. The questionnaire measures nurturance, affective reward, instrumental companionship, etc. Fifteen variables are measured in all. Test reliability ranges from r = .26 to .88; it has a factor score reliability of r = .70 to .91. A specimen set is available.

Draw-A-Group Test, by Hare and Hare (J. Gen. Psy., 89, 51-59). The test, used for ages 6-10, is a projective technique to measure the subjects social personal adjustment. Scoring protocols are available for the pictures drawn by the subject. Evidence of test validity comes from correlation with teacher and clinician rankings, where the mean correlation was r = .52; when the extreme upper and lower quarters of the scores were used, a mean correlation of r = .62 resulted.

The Etch-A-Sketch (Mother-Child Interaction), by R. Hess, et al. It is designed for preschoolers. This is a performance task in which the mother instructs and helps her child draw certain figures with the Etch-A-Sketch. Other agencies have been involved in test development; information is available from National Head Start Research and Evaluation.

G-W Method of Paired and Projective, by Getzels and Walsh (Psy. Mono, 1958, 72, No. 1). This instrument is for ages 8-13. It is a paper and pencil technique with 40 incomplete sentences to which the subject is to respond. It attempts to measure attitude structure and socialization. Interscorer reliability ranged from r = .97 to .98 for direct scores, and from r = .95 to .96 for projective scores.

Preliminary Behavior Observation Schedule, by I. Gordon, et al. (University of Florida, Gainesville). The observation schedule is used for preschoolers. Certain behaviors in certain situations are specified for observation. No test information is available. A specimen set can be obtained.

Stamp Behavior Technique, by Isla M. Stamp (Australian Council for Educational Research). For preschoolers, this is structured questionnaire for systematic recording of observed behavior. The teacher checks the appropriate answer in multiple choice groups of questions. It is standardized. It measures: interaction with others, selfhood, demands of others and child's response to them, expression of demands on others, coping with frustration, coping with stress, coping with realistic fears, need for approval, communication, health, use of powers and general behavior. A specimen set is available.

Emotional Variables: School Adjustment

Behavior Checklist, by Eli Rubin. This instrument is used for preschool through elementary aged children. Someone very familiar to the subject checks statements about various children's behaviors which apply to the subject. There are two forms: 1 elementary, 1 preschool. The checklist assesses emotional-social maladjustment in the classroom. The test information is not currently available: specimen sets available.

St. Louis Symptom Inventory, by Glidwell, *et al*. The inventory uses a mother interview to assess school adjustment for early elementary children. It is intended as an emotional disturbance screening device. There is a high agreement between ratings by social workers and psychiatrists 68% valid decisions at cut-off point of 3 symptoms. The instrument has had some recent revisions. Contact Lorene Stringer, St. Louis County Health Department, for the most current test information.

School TAT, by Mary Engle (Children tell stories about schoo, APA paper, 1964). For elementary grades, the instrument uses a projective technique. It is a picture story test with school oriented stimuli. It measures more or less mature ways of coming to grips with the demands of school. The inter-rater reliability ranges from r = .81 to .83.

Emotional Variables: Motivation

Gumpgookie, by D. Adkins and B. C. Ballif. The Gumpgookie is an individual test, used to measure the achievement motivation in preschool age subjects. Every child has a gumpgookie, the subject is told. He then picks out his gumpgookie from sets of two gumpgookies (where each figure does something reflecting specific motivations). The test has a reliability of r = .88 (KR 20). Correlation of the Gumpgookie score and teachers' ranking of child with respect to motivation was r = .76. Communication with those currently using the instrument suggests that there may be too many items for the child to respond to in a meaningful manner. A specimen set is available.

Emotional Variables: Anxiety/Wishes/Fears/Conflict/Aggression

The Anxiety Scale, by Jerry D. Alpern. For preschoolers, the scale is a modified interview technique used to assess anxiety. It consists of 79 items. The subject responds by putting a steel ball in a box with a "happy" or "sad" face when asked, "Which face looks like you when____?" It has a test-retest reliability of r = -.14 to .46 for ages 3-3 to 3-11; r = .57 to .89 for ages 3-11 to 5-1. There is no significant correlation with teacher ranking of anxiety. A specimen set is available.

Child Conflict Scale, by Walter Emmerich (Gen. Psy. Mono., 1959, 60, 257-308). The scale is used for preschool age children, three years, 7 months, to 5 years, 1 month. Using the 5 point scale for scoring responses, it measures the manifestation of the child's attempts to avoid the appropriate response to questions put to him. The conflict is a composite of the avoidance manifestations. The appropriate response is one which could be scored with respect to content on the nurturance-control scale. Inter-rater reliability is r = .86, and the test-retest reliability ranges from r = .44 to .56.

Children's Manifest Anxiety Scale, by Castaneda, *et al*. (*CD*, *27*, 317-326). Designed for use with upper elementary aged children, this scale is an adaptation of the Taylor MAS. A paper and pencil test, the child circles "no" if statements are not true about himself. It has 42 items. The scale has a test-retest reliability of r = .70 for the Lie scale, and r = .90 for the anxiety scale. Girls score significantly higher than boys.

Life Situation Perception Test, by A. Ladonko (*J. Clin. Psy.*, 1962, *18*, 297-299. The test is used for children approximately six years old. It is a projective technique scored similarly to the Rorschach. The test is intended to supplement the Rorschach information. It consists of requesting the subject to look around himself and describe what he sees. His answers are then transcribed on an answer sheet and Rorschach scored. The test offers a method of percept-diagnosis, yielding a better view about the subject's "situational reactions." No reliability or validity information is available.

Mooseheart Wishes and Fears Inventory, by Mooseheart Laboratory for Child Research. The inventory is a projective technique in two forms (one for younger, one for older) for ages 4-16. It is interpreted as a projection of the child's personality. It consists of a series of questions asked the child concerning wishes, positive identifications, desired activities, undesired activities and changes desired. No reliability or validity information is available. A specimen set may be obtained.

Personality Assessment, by Schacter, Cooper, Bordet (SRCD Mono, 33, No. 3). This instrument is used for all ages, preschool through maturity. It is a Q sort technique with numerous rating categories. The categories cover a very wide variety of personality variables. The mean intersorter reliability is r = .62.

Puzzle Box Test, by Zunich (J. Gen Psy. 104, 19-24). The test is used for preschoolers. It is a puzzle box task which looks as though it could be easily solved, but cannot be. The task is to remove the puzzle from the box, replace it in the box and close the lid. The test measures the subject's reaction to failure. Observations of the subject are made according to specified categories. The percent of agreement between observers over a ten minute period is from .81 to .97.

Structured Interview Technique, by Pauline Vorhous. This instrument is used for upper elementary to adult ages. It consists of 32 questions about pictures of a like-sexed person drawn by the subject. The same 32 questions are then asked about the subject himself, instead of the picture. The Interview is intended to measure the subject's needs. It is clinically scored only. No test information is available. A specimen set may be obtained.

Teacher's Rating Scales, by Rubin (Emotionally handicapped children and the elementary school, Rubin, Eli Z., Simson, E., Betwee, M. Wayne State University Press, 1966). This is a teacher rating scale of social and emotional adjustment in the classroom for children in grades K-6. It assesses anxiety, tension seeking, curiosity, reaction to criticism, etc. Rating is done on a nine point scale with ends and midpoint defined. The inter-rater reliability for 79 scales is r = .26 to .94. Sixty-six percent of the coefficients were greater than .75. A specimen set is available.

Teacher's Rating Scale, by S. Sarason (Anxiety in elementary school children, Sarason, S., Yale University, 1960). For elementary school age children, the five point rating scale has 17 items. It is used by teachers to assess children's anxiety. It has a low negative correlation with mean achievement, and it correlates r = .09 to .34 with the Test Anxiety Scale.

Emotional Variables: Miscellaneous

Cincinnati Autonomy Test Battery, by Banta, Thomas J. Designed for preschoolers, the CATB uses an individual testing situation. Three subtests with potential emotional content are: Curiosity, Persistence, and Resistance to Distraction. Curiosity involves a "curiosity box" and includes timing such that it is likely to elicit an emotional response. PR to D involves puzzle assembly which can be somewhat difficult, eliciting possible emotional response. Reliability for the curiosity box task was r = .91 (KR 20); for the Persistence task r = .33 (KR 20). More recent information is being processed. Specimen sets are available.

Preschool Self-Concept Picture Test (PS-CPT)

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Introduction

The PS-CPT is designed for use with middle-class preschoolers. Most of the information about the instrument has been gathered from subjects aged 4 and 5 years. The very real possibility of cultural bias made it necessary to gather data on its performance in a population more representative of the Head Start population. Field test results follow Dr. Woolner's brief description of the instrument and the research which she has done on it.

Preschool Self-Concept Test

The learning process begins at birth and included in this process is learning about oneself. Assisting each child to develop a healthy concept of self, that is, helping each child reduce incongruence between self-concept and ideal self-concept, is an important goal of preschool education. Therefore, it seems necessary for the preschool teacher to know how each child perceives himself in order to design an appropriate curriculum which will enhance each child's self-concept. The Preschool Self-Concept Picture Test was primarily developed for the purpose of providing a preschool teacher with an easily administered and interpreted test for assessing the attitudes her pupils have toward themselves. The ultimate value of this instrument is the insight an individual teacher may gain about a particular child in her classroom.

Description. The PS-CPT consists of ten plates with paired pictures on each plate. Culturally and developmentally orientated, the pictures represent personal characteristics which preschool children may commonly attribute to themselves. Two sets of pictures are provided: one for boys and one for girls. Pictured characteristics, according to Plate number are:

1. Dirty - Clean
2. Active - Passive
3. Aggressive - Nonaggressive
4. Afraid - Unafraid
5. Strong - Weak
6. Acceptance of male figure - Rejection of male figure
7. Unhappy - Happy
8. Group Rejection - Group Acceptance
9. Sharing - Not Sharing
10. Dependence - Independence

The pictured characteristics represent ten positive and ten negative characteristics.

The rationale for selecting the characteristics which are depicted on the ten plates is related to the needs, concerns, characteristics and developmental tasks of middle-class kindergarten children, their parents, and teachers.

For six plates the positive and negative characteristics are identical for boys and girls, while on four plates sex differences are noted.

Depicted Characteristics

Positive		Negative	
Boys	Girls	Boys	Girls
Clean	Clean	Dirty	Dirty
Active	Passive	Passive	Active*
Aggressive	Nonaggressive	Nonaggressive	Aggressive*
Unafraid	Unafraid	Afraid	Afraid
Strong	Weak	Weak	Strong*
Like Male Figure	Like Male Figure	Dislike Male Figure	Dislike Male Figure
Happy	Happy	Sad	Sad
Group Acceptance	Group Acceptance	Group Rejection	Group Rejection
Sharing	Sharing	Not Sharing	Not Sharing
Independent	Independent	Dependent	Dependent*

* Sex difference

Administration and scoring. In the testing situation, each subject is examined individually. After establishing rapport with the subject, the examiner states, "____________(child's name), we are going to play a game. We are going to pretend, to play-like, you are the________ (boy or girl) in the checkered______________(pants or dress) in the pictures I show you. I will ask you two questions. You point to the picture that answers that question. Then I will ask you the second question, you point to the picture that answers that question. You may choose either picture you want. Do you understand the game? Do you know how we are going to play the game?" If further explanation is needed it should be given.

When the examiner is satisfied that the subject understands the directions, he or she should show the child Plate 1 and ask, "Which boy (girl) are you? This one or that one?" (Pointing to the picture A and then to picture B on Plate 1). After the child has responded by pointing to a picture, the second question should be asked, "Which boy (girl) would you like to be?" Each time pointing to picture A and then to picture B. Record the child's responses on a prepared answer sheet. Follow same procedure with subsequent plates. The plates are shown in sequence: e.g., Plate 1, then Plate 2, then Plate 3, and so on until responses are recorded for each plate. Although the test is not a timed one, the average time for administering is fifteen minutes. Answers to the first question represented the child's self-concept, who he is; answers to the second question represented his ideal self-concept, who he would like to be. Discrepancies between these concepts reflected incongruence between self- and ideal self-concept, dissatisfaction with self. The greater the percentage of agreement the greater the degree of satisfaction the child has with himself.

This test provides the following data:

1. The attitudes children have toward themselves -- their self-concepts.
2. The image children have of who they would like to be -- their ideal self-concept.
3. The attitudes or personal characteristics children would like to alter -- incongruency between self- and ideal self-concept.

Validity and reliability. The Preschool Self-Concept Picture Test was first administered to a group of emotionally healthy preschool children and a group of emotionally disturbed preschoolers who attended

Children's Guild, Inc., Baltimore, Maryland. The emotional stability of both groups was determined by a professional team composed of a psychologist, a psychiatrist, a social worker and a preschool teacher. Results of this administration of the PS-CPT indicated that emotionally healthy children viewed themselves differently than emotionally disturbed children. Healthy children saw themselves as having more positive characteristics than disturbed children. Congruence between self and ideal self-concept was 80% to 100% in the emotionally healthy group, whereas congruence between self and ideal self-concept was 20% to 00% in the disturbed group. One child, a five-year-old girl who attended the preschool for emotionally healthy children, when tested responded as the children in the emotionally disturbed preschool did. The staff members of both schools were not informed of the results of the test. Some weeks after the test was administered, the teacher requested that the therapeutic preschool staff review the little girl's record because she felt the child showed some symptoms of emotional disturbance.

To determine if preschool children viewed the picture in the same or similar context as the test designer a group of middle-class four and five-year-old children, in an individual interview, were asked to describe each plate. Their responses were taped and tabulated. Except for one plate, unafraid and afraid, the children's descriptions of the plates agreed with the test designer's descriptions. Because of the children's responses to the unafraid and afraid plate it was redrawn.

A study conducted at Memphis State University[1] provided additional validity and reliability data. To determine the consistency of performance of PS-CPT, one group of children received three exposures to the self-concept test and the three sets of scores were intercorrelated. All correlations found to be above .90 except for the correlations between Test 1 and Test 3 on ideal self-concept which was found to be .80. Although the correlation between Draw-A-Man Self-Concept Test and the PS-CPT was not significant ($r = .21$), it approached the .05 significant level ($p < .232$).

Memphis State University Study. The study attempted to investigate the self and ideal self-concepts of kindergarten children by

1. determining some of the attitudes five-year-olds had toward themselves;
2. determining if the kindergarten experiences affected these attitudes and
3. developing a pictorial non-verbal self-concept test which would provide the kindergarten teacher with an insight to the child's perceptions of himself.

Sixty-seven middle-class five-year-old subjects were divided into four groups; Group I and II with thirty-nine university demonstration school children; Group III with eighteen private school children; and Group IV with ten children who did not attend kindergarten. The schools involved had different program emphasis. The private school tended to be academically-oriented while the demonstration school program was experience-oriented.

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[1] Described in greater detail on subsequent pages.

Procedures. The Draw-A-Man Test, Peabody Picture Vocabulary Test, and the PS-CPT were administered to all groups at the beginning of the school year (October). The PS-CPT was administered to Group I in October, two weeks later and six months later. Groups II, III and IV were tested in October and April. Teachers rated their pupils in October and April. Analysis of variance, phi coefficient analysis and the Spearman-Brown formula were the statistics used to analyze the data. There were no significant differences between the groups in October.

Findings.

1. Of the ten characteristics depicted on the PS-CPT, the children chose two different from those postulated to be congruent with society's expectations. Boys tended to see themselves as passive and strong while girls tended to view themselves as active and strong.
2. The children's different types of kindergarten experiences tended to alter their attitudes toward themselves. Boys in the experience-oriented kindergarten viewed themselves as active and wanted to be active; girls perceived themselves as passive and preferred being passive. In October the boys in the academically-oriented school viewed themselves as active; in April, they wanted to be passive. The girls in the academically-oriented group perceived themselves as active in October and April. Non-kindergarten children held similar self-perceptions to the academically-oriented children.
3. Kindergarten experiences altered children's self and ideal

self-concepts to a greater extent than the types of experiences had by children who did not attend kindergarten.

4. Experience-oriented groups made greater gains in congruence between self and ideal self-concept than the other two groups, although all groups gained in congruence. The least amount of gain in congruence was noted in the non-attending group.
5. Kindergarten experiences altered children's ideal self-concepts more often than affecting changes in self-concepts.
6. In October, the non-attending group preferred being alone whereas in April they wanted to participate in group activities.
7. Evidence in this study supported the position that hostility toward male figures may be observable at age five.
8. Little or no relationship existed between the teachers' ratings of their pupils' characteristics and the children's self-perceptions.
9. The hypotheses related to the validity and reliability of the PS-CPT indicated that it consistently measured self-concept and that it had construct and content validity.

Summary. Findings indicated that the five-year old children involved in this study were able to express attitudes toward themselves, that kindergarten experiences affected children's self and ideal self-concepts, and that the pictorial method of investigating self-concept held some promise for use in kindergarten classrooms.

Interpretation of Preschool Self-Concept Picture Test. The primary purpose of the Preschool Self-Concept Picture Test is to provide a teacher with data related to the child's feelings about himself on ten characteristics depicted. The test answers the following questions:

1. Which of these characteristics does the child consciously attribute to himself? What is his self-concept? (Part I on the scoring sheet).
2. Which of these characteristics does the child consciously wish he possessed? What is his ideal self-concept? (Part II on the scoring sheet).
3. Is his self-concept consistent with his ideal self-concept? What degree of congruence exists between his self- and ideal self-concept?

The first two questions provide the teacher with lists of characteristics the child believes he has and wishes he had. To fully utilize these lists, the teacher should observe the child's behavior and determine if the child behaves consistently with his feelings about himself. For example: Five-year-old Johnnie indicated, when tested, that he was independent (Plate 10) and wanted to be independent; yet in the classroom he asked his teacher to draw his pictures, cut out his pictures, button his coat, etc. From these observations the teacher could assume that Johnnie did not have a realistic view of himself especially since his behavior was inconsistent with his verbalized self-concept. She should plan a series of experiences which would assist Johnnie in becoming independent and which would make him consciously aware of his independent behavior.

Another example is Susan, who indicated that she rejects the group

(Plate 8) but wants to be a member of the group. She may be saying, "I don't know how to play with a group. Help me become a part of it." Through other such observations the teacher discovers Susan's perceptions are correct. The teacher should arrange small group experiences which would facilitate Susan's becoming a member of the group and which would suggest ways she might become a group member without assistance from the teacher.

A third example is Jimmy, who indicated that he is strong and that he wants to be strong. Furthermore, according to the teacher's observations, his behavior indicates he is strong. Consequently, the teacher may not need to be concerned about this particular characteristic in Jimmy.

The answers to the third question indicate the degree of congruence between self- and ideal self-concept, that is, the degree of acceptance and/or satisfaction the child has of himself. The greater the congruence between self- and ideal self-concept, the greater the degree of acceptance and/or satisfaction the child has with himself. The degree of congruence for children who have an adequate self-concept is 70% or greater.

The evidence from the use of the Preschool Self-Concept Picture Test revealed, then, that the less the congruence between self- and ideal self-concept, the poorer the self-concept. The degree of congruence for children who have poor self-concepts is 30% or less. Thus, it would seem that the teacher should provide classroom experiences which will improve these children's self-concepts.

Field Testing

Subjects. The 70 subjects were drawn from a rural midwest Head Start project. Ethnically they were all Anglo-American. There were 36 disadvantaged children and 34 advantaged ones when they were classified according to whether their families met the Head Start financial guidelines. The subjects were 47-65 months of age at the time of testing.

Testers. Two MSU E&R Center staff administered the instrument. They were experienced testers with training in the administration of the PS-CPT.

Field test results. Anecdotal records indicated the presence of several potentially disruptive factors:

1. A number of children found the drawings unattractive;
2. Some children were confused by changing physical characteristics such as hair color, and clothing of the stimulus figures in succeeding pairs of test pictures;
3. At least one plate has a sufficiently distracting characteristic (Plate 8A, child apart from group is playing with a butterfly) that it is doubtful just what is being tested by the item.

An examination of the distribution of positive responses given by the field test sample and a PS-CPT norming sample (Table 1) shows that the latter's responses do differ markedly from the field test sample responses on several items. The most notable deviations occur on the "unafraid," "accept male," "group accept" and "share" items. In each case the norming sample percent responding positively was 20 to 30 percentage points higher than the field test sample.

Two reasons for these results suggest themselves: these items are qualitatively different for the two samples or the two populations are truly different. In reality the results are likely to be due to an interaction of these two factors, particularly since the norming sample was largely middle class, urban and the field test sample was rural, with about half disadvantaged subjects.

It is clear that these points should be investigated before this test is recommended for use with disadvantaged and/or rural children. The first necessary step is a cross validation of the perceived item content for the new population. This should reveal qualitative changes in the nature of the items.

A comparison of the distribution positive responses for males and females in the PS-CPT norm sample and the field test sample (Table 2) shows large discrepancies between the two samples on several items. For males and females, the items "accept male," "group accept," "share" and "independent" show the norming response to be 20 to 30 percentage points higher than the field test responses for females only, differences of 20 to 30 percentage points appear on the items "aggressive," "unafraid" and "strong." The norm group percentages are higher on the first two items while the field test ones are higher on the "strong" item.

Again, in order to explain these results it will be necessary to ascertain whether the subjects of the new population are interpreting the items in the same way the last norm was.

Within the field test sample, comparisons were made between the proportion of positive responses given by males and females (Table 1) and between those given by advantaged and disadvantaged subjects (Table 2) using a X^1_2 test of homogeniety. The results indicate a significant difference ($p < .05$) in male and female responses for 3 items: "active" ($X_1^2 = 5.5$); "unafraid" ($X_1^2 = 8.26$) and "strong" ($X_1^2 = 4.4$), where males gave a higher proportion of "unafraid" and "strong" responses, and a lower proportion of "active" responses.

Comparing advantaged and disadvantaged subsamples, significant differences ($p < .05$) appear on the "happy" item ($X^2_1 = 4.7$). A higher proportion of happy responses occur in the advantaged subsample.

When subsample comparisons of agreement scores are made by sex and by socio-economic status (Table 3), one significant difference is present. Males had significantly higher agreement scores than females ($t_{68} = 2.55$).

There was no significant correlation between age and agreement scores.

The differing results within the overall sample suggest that norming procedures for any new population should be done so that individual norms for sex and socio-economic status are made available.

Reliability and validity. Validity and test-retest reliability information are unavailable for the field test sample due to testing time limitations.

Table 1

PS-CPT Norm Sample Pretest and MSU Field Test, Distribution of Positive Responses for "Who Am I" Items

Number	Name	Percent of Positive Responses			
		Male		Female	
		PS-CPT	Field Test	PS-CPT	Field Test
1	Clean	86	91.9	83	84.8
2	Active	40	27.0*	36	54.5*
3	Aggressive	64	64.9	73	42.4
4	Unafraid	83	67.6**	83	33.3**
5	Strong	81	75.7*	13	51.5*
6	Accept Male	91	40.5	73	54.5
7	Happy	78	91.9	73	75.8
8	Group Accept	86	59.5	73	51.5
9	Share	75	48.6	80	42.4
10	Independent	74	45.9	67	33.3

Table 2

PS-CPT Norm Sample Pretest and MSU Field Test,
Distribution of Positive Responses
for "Who Am I" Items.

		Percent of Positive Responses		
Number	Name	Disadvantaged	PS-CPT*	Advantaged
1	Clean	91.7	83-86	85.3
2	Active	38.9	36-40	41.2
3	Aggressive	44.4	64-73	64.7
4	Unafraid	44.1	83	55.9
5	Strong	61.6	13-81	67.6
6	Accept male	47.2	73-91	47.1
7	Happy	75.0**	73-78	94.1**
8	Group accept	55.6	73-86	55.9
9	Share	38.9	75-80	52.9

* PS-CPT norm results are split by male and female subjects. Both results are presented where they were different. See Table III PS-CPT manual.

** Significant difference between proportion of positive responses for advantaged and disadvantaged in the MSU field test data, at $p < .05$.

Table 3

PS-CPT Comparison of Field Test

Subgroups on Agreement Scores.

a. Socio-Economic Status

Group	N	Mean	SD	t_{68}
Disadvantaged	36	6.3	3.2	.269
Advantaged	34	6.1	3.0	

b. Sex

Group	N	Mean	SD	t_{68}
Male	37	7.1	2.8	2.55 *
Female	33	5.2	3.1	

* Significant at $p < .02$

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The Brown IDS Self-Concept Referents Test

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Introduction

The Brown was used with a large sample of Head Start children in the 1967-68 Head Start evaluation. It appeared to function adequately, although there has been some indication that preschoolers have difficulty understanding the difference between "self referents" and "other referents."

The following portion of the introduction appears in the Brown IDS Self Concept Referents Test Manual (p. 7-9).

The process by which "awareness" of own attributes becomes translated into self concepts was discussed by G. H. Mead (1956). His theory anchored the development of self-awareness in social interaction. "The self," he argued, "is not initially present at birth but arises in the process of social experience. It develops, in a given individual, as a result of his relations to the social system as a whole and to other individuals within that social system." (p. 212) Mead further argued that the individual experiences himself not directly, but in an indirect fashion, from his perceptions of the particular standpoints of other members of the same social group toward him, or from the generalized standpoint of the social system in which he functions.

In other words, the individual becomes an "object" to himself by taking the attitudes of other individuals toward himself.

Social perception occupies a crucial place on Mead's theory of self-awareness. The individual functions within a social matrix, and his perceptions of others perceptions of him become the basic data from which concepts of self are formed. These perceptions need not correspond exactly to the ways in which the individual's needs, motivations and past experiences. Mead further argued that the development of self-awareness is not only determined by one's perceptions of the attitudes of specific others toward him, but that it is also a result of the prevailing attitudes and values normatively held by the social group to which he belongs. He identified the more general influence of the social environment on self-awareness as the effect of the "generalized other," and he viewed the generalized other as a referent against which one evaluates himself. In addition, Mead thought of the generalized other as a standard of acceptable social values which is responsible for the attribution of positive or negative values, by the individual, to his own characteristics.

It is important to explicitly recognize that one's social experience, his relations with others, his perceptions of himself and of his place in the social order, as well as his moods and temperament, are subject to change over time. At the same time it is reasonable to assume that certain dominant or pervasive themes may remain relatively unaltered throughout long periods of an individual's life. In addition, we must recognize that our conceptions of ourselves are no doubt multidimensional rather than unidimensional and that the many different components of our self awareness are derived from:

1. the actual perceptions that others have of us,
2. our perceptions of the ways in which we are seen by others, and
3. others' perceptions of the ways in which we perceive ourselves.

It can also be argued that among the "others" with whom an individual interacts, some are likely to be more influential or salient than others. One thus attaches differential importance to the ways in which he supposes he is seen by others as a function of their importance to him. From this it follows that:

> Our perceptions of ourselves are basically derived from our perceptions of the behavior of others toward us.
>
> Greater weight is given to the ways in which we suppose "significant" others respond to us and less weight is given to responses made to us by those who are less important.
>
> The "subjective" and "objective" components of self

concept discussed by Mead are easily distinguishable in this formulation. On the one hand the "self as subject" component consists of those feelings of intrinsic self worth held by an individual about himself. On the other hand, the "self as abject" component consists of the perceptions which one has of the ways in which he is seen by "significant" others in his life. These "significant others" have an important function in the formation of concepts of self. They serve as"referents" from whom one continually seeks and receives about the ways in which he is seen by these referents becomes the basic material upon which perceptions of self as a social "object" are built. Thus, the explicit assumption which is being made in this paper is that an individual will tend to form impressions of himself, of his characteristics and of his capacities from information which he receives from referents about the ways in which they see him.

This formulation provides the theoretical basis on which a new technique has been developed for the specific purpose of assessing self concept among young children.

Brown IDS Self Concept Referents Test

Brown presents this description of the instrument:

Let us assume that in the case of the young child a great number of "significant others" (referents) can be identified. However, for operational purposes we shall assume that the following three referents are normally highly salient, and strongly influence the ways in which children perceive themselves:

1. the child's mother,
2. the child's teacher, and
3. the child's peers (classmates).

The questions which we now want to ask of children are:

1. How do you suppose your teacher perceives you?
2. How do you suppose your teacher perceives you?
3. How do you suppose your classmates perceive you?

An important fourth question is also suggested by this framework:

4. How do you perceive yourself?

Taken together, the former three questions clearly resemble Mead's "self as object" component of self concept, and the fourth resembles his "self as subject" component.

In this technique the child (S) is required to assume the perspective of each one of these significant others toward himself. He is then asked to report his perceptions of the views of him held by each one of these referents on fourteen descriptive dimensions. The descriptive dimensions are constant across all "object" and "subject" referents. Ss are thus required to characterize themselves from their own view and from their perceptions of the ways they are seen by mother, teacher, and "other kids in the class."

A crucial requisite in this procedure revolves around the young child's ability to take the role of others toward himself. At first glance it would seem that inducing a young child to take the role of another toward himself might be a difficult task. However, we have developed a simple induction which appears to work well. This induction requires that a photograph be taken of each S placed in the center foreground of the picture. The child is presented with the photograph of himself in order to assist him to gain "objectivity" about himself. "Objectivity" is defined here as perception of the self as an "object."

Since there is a need for immediate availability of the photograph, we have used a Polaroid camera equipped with a "wink" flash unit which produces completely developed three by four inch prints within fifteen seconds after exposure. The process involved in developing prints is entirely automatic and the camera is quite simple to operate. After taking the photograph, Ss are asked to report:

1. their perceptions of the ways in which they suppose they are seen by each of the "significant other" referents, and
2. their perceptions of themselves.

A core of fourteen bipolar adjectival items constitutes the dimensions on which Ss must report both their own perceptions of them. The set of descriptive items was pilot tested and subsequently modified to assure that the items were easily comprehensible to four-year-old Ss. These items are stated in the vocabulary of four-year-old children. All items are presented in an "either-or" item format, the more socially desirable choice being scored "1" while the less socially desirable choice is scored "0". These items are given in Table 1.

Ss are asked to report their perceptions of themselves and their perceptions of their mothers', teachers', and peers' perceptions of them on each of these items. The set of items is thus repeated four times and the only factor which is varied is the referent against which the items are cast. This procedure can be easily illustrated with the following example. Imagine that an S's name is Johnny Gallagher, the items would be presented as follows:

1. Now tell me, is Johnny Gallagher happy or is he sad?
2. Now tell me, is Johnny Gallagher clean or is he dirty?
3. Is Johnny Gallagher good looking or is he ugly?

An examiner (E) would proceed through the entire set of items, prefacing each question with the phrase "Is Johnny Gallagher...?" Following this, the referent is shifted and it becomes: "Now tell me, does (insert name of Johnny Gallagher's teacher) think that Johnny Gallagher is happy or sad? Does (teacher's name) think that Johnny Gallagher is clean or dirty?" After proceeding through the entire set of items, the referent is again shifted and becomes: Do the other kids in the class think that Johnny Gallagher is...?"

Each question is asked with specific reference to the photograph which has been taken of S. Thus, as E asks each question he points to the picture of S, directing S's attention to the photograph of himself.

Since the procedure outlined above is a repetitive one, and due to limitations on the attention span typical of our-year-old children, the four referents cannot realistically be administered to Ss on one occasion. Instead, the "self" and "mother" referents are administered at the first examination and the "teacher" and "peer" referents are administered three weeks later.

The three week interval has been used to permit a measure of retest reliability . Thus, in addition to the administration of the "teacher" and "peer" referents at that later time, the "self" referent is readministered and the retest reliability measure is taken from the correlation between the "Self I" and Self II" referents. It should be noted that the same photograph is used as was used in the earlier administration. All Ss are promised, when their photographs are taken initially that they will be given the photograph when the examination is finished a few weeks later.) For purposes of control and rapport, it is also important that the same examiner readministers the retest and that the retest be done in the same room which was used earlier.

The procedure yields a "self as subject" score, "self as object" score, and scores for each of the referents taken singly. The "object" score is obtained by summing across the mother, teacher, and peer referents. (A more detailed examination of the relationships between these referents will be presented in a later section of this paper.)

For a copy of the instructions see page 50.

Field Testing

For the purposes of field testing the instrument was abbreviated to include only the "self" and "other" referents. This procedure was used to reduce the test length and to at attempt to eliminate the young child's possible difficulty in differentiating between "self" and "other" referents.

Subjects. The 70 subjects were drawn from a rural midwest Head Start project. Ethnically they were all Anglo-American. There were 36 disadvantaged children and 34 advantaged ones when they were classified according to whether their families met the Head Start financial guidelines. The subjects were 47-65 months at the time of testing.

Testers. Two MSU E&R Center staff administered the instrument. They were experienced testers with training in administration of the Brown IDS Self Concept Referents Test.

Field test results. Anecdotal records show that a number of field test subjects had difficulties with the test vocabulary. They seemed to attend only to a key word in an adjective phrase.

The testers reported that this abbreviated form tended to be fast and easy to administer. The children generally seemed to understand the task in both the self and mother referent subtests. The extent to which our response data is confounded by the effects of social desirability is still unknown however.

The distribution of scores on the self and mother referent subtests (tables 1 and 2) show some subjects failing to respond to items 8, 12 and 13. This information, combined with anecdotal information suggests that the vocabulary in at least half of each of the items was unfamiliar to the subjects. The subjects seemed to find the word "smart" especially unfamiliar.

One item, "likes to talk a lot" appears in both table 1 and 2 to be without a clear-cut popular response. This appears to be similar to Brown's original results. Comparing the self and mother referent subtests on per cent selecting positive options for each item, there appears to be considerable consistency within the field test sample.

Correlations of total self referent scores and age yielded an $r = .248$. Total mother referent scores correlated with age at $4 = .216$. Neither correlation is significant at $p \leq .05$.

Comparisons of male and female subsamples on total self and total mother scores with a t-test yielded no significant differences at $p \leq .05$. Similarly, there were no significant differences at $p \leq .05$ between advantaged and disadvantaged subjects on either self total scores or mother total scores when compared with a t-test.

These results suggest that separate norms for age, sex or socio-economic status may not be crucial for this test in this type of sample.

Reliability and validity. Test-retest reliability is the logical type to report on this instrument. Due to lack of testing time, however, it is not available from this field testing. For the same reason validity information is unavailable for this sample.

Instructions to Subjects and Administration Procedures

Prior to photographing S the following standard instruction should be given by E:

> "Well now, we're going to take a picture of you. Get ready...when I count to three I'll snap your picture. Are you ready now? 1, 2, 3..."

(Notice that no instruction to "smile" etc. has been included. This is purposefully left ambiguous in order to obtain a spontaneous facial expression, and is especially important since giving this instruction would clearly bias responses to the happy-sad item.)

After the exposure has been made, E waits fifteen seconds, then pulls the developed print from the developer compartment of the camera. During this time interval, E may speak with S to establish rapport. After fifteen seconds, E says to S:

> "Well look at that (pointing to print). That's a picture of you. That's a picture of (child's name). Isn't this a nice picture of (child's name). This is really you because you are (child's name) and there you are in the picture."

(E points to S's image in the photograph.)

To ascertain the effectiveness of the induction, E then asks S:

> "Can you tell me who that is in the picture?"

(E must obtain a response indicating that S knows that it is he in the photograph; either "That's me," or child states his own name or simply points to himself. If S does not recognize himself in the picture E repeats induction above. E must obtain a statement from S indicating that he recognizes himself in the picture before proceeding further.)

E seats S at a table suitable in height and size for a young child, and places the photograph on the table top, directly forward of S and beneath his head in about the same position as a dinner plate is usually placed. Since the recently developed print will tend to curl it will be useful to use two small pieces of tape at the top and bottom edges of the print, fastening it to the surface of the table. E should seat himself directly opposite S at the table and then say the following:

"Now I'd like to ask you a few questions about (child's name)." E then points to the picture, placing his own finger on it and proceeds to ask the set of questions in the context of the "self" referent. E must restate the introductory stem before asking each question and must point to the photograph each time he asks a question.

"Now can you tell me, is (child"s name) happy or is he sad?" E proceeds through all items in the "self" referent in this manner. It is important that E explicitly point to the picture before asking each question, thereby repeatedly directing S's gaze and attention to it. It is also important to continually restate the question stem in the objective case: "Is (child's name)...happy or is he sad?" This procedure establishes a set in which the child is induced to "stand back from himself," and to gain a perspective of himself as an "object" in the photograph. This should also assist S to assume the role of another toward himself.

After responding to all items on the "self" referent, the "mother" referent is introduced by E:

> "Now that was very good (child's first name). I'd
>
> like to ask you a few more questions. This time I'd like to ask you a few questions about (child's name) mother. Can you tell me...Does (child's name) mother think that (child's name) is happy or sad?"

E proceeds through the entire set of items in the "mother" referent context. Again, E must point to the photograph and repeat the appropriate stem before asking each question. The fourteen items asked under the "mother" referent are identical to those asked under all other referents. Only the referent itself is to be varied.

At this point, S will have completed two referent scales. The "self" referent scale, and in the case illustrated above, the "mother" referent. Total administration time for these two referents, including time spent in taking the picture, should run to approximately 15 minutes. Since there is a problem of limited attention span among young children we have found it useful to stop at this point. E then says to S:

> "Well we'll stop now and I'll come back in a few weeks, when I'll ask you a few more questions and then I'll give you your picture to keep. It will be all yours. You can do whatever you want to with it. You can bring it home, or keep it for yourself, or you can throw it away. It will be all yours."

After examining all Ss, E leaves and returns three weeks later. He continues with each S, preferably in the same room, seated at the same table and with the room arranged as it was before. E begins the testing session II saying:

> "Well hello there. Do you remember looking at your picture with me a few weeks ago? Well here is your picture again. I just want to ask you a few questions and then I'm going to give you your picture to keep for yourself, just as I promised. You can do whatever you like with it. It will be for you to keep."

E then places picture on table, fastens it to surface, as before, seats himself opposite S and begins administration of Part II.

The first referent to be administered to S should be a repeat of the "self" referent given three weeks earlier. The procedure to be followed should duplicate, as completely as possible, the earlier administration. Following this procedure is of crucial importance since the test-retest reliability measure will be taken between responses to the first "self" referent and responses to the second, administered three weeks later.

On Test Session II, it will be necessary to administer the "self" referent in the first position, e.g., before either of the remaining two referents ("teacher: or "other kids"). This procedure should be followed precisely since the reliability estimate is taken on the "self" referent and it is expecially desirable to free responses to this referent from as much error variance as possible. Thus, administering the "self"referent in either the second or third position may refresh the child's memory of his previous responses to the items, and since it would be difficult to determine the extent to which responses were so affected, uncontrolled error variance in retest data would presumably be increased.

After completing the first referent, E administers the remaining two referents, e.g., the "teacher" and the "other kids" referent, again following the procedure.

Upon completion of the five referents ("mother", "teacher", "other kids", plus "Self I" and "Self II") the examination is terminated. E should thank S warmly, present him with the photograph, and again reinforce the value of the picture by saying:

> "Well now, this picture is for you to keep, just as I promised. Here it is; remember you can do whatever you like with it; you can keep it for yourself or show it to your mother or teacher or whatever you like."

Table 1

Brown IDS Self Concept Referents Test
Distribution of Scores on Self Referent Items

Item Content Positive Option	Item No	Percent Selecting: Positive Option	Negative Option	No Response
Happy	1	71.8	28.2	0
Clean	2	81.7	18.3	0
Good looking	3	76.1	23.9	0
Likes to play with	4	83.1	16.9	0
Likes to have own	5	74.6	25.4	0
Good	6	84.5	15.5	0
Likes to talk a lot	7	57.7	40.8	1.4
Smart	8	70.4	18.3	11.3
Not scared-things	9	84.5	15.5	0
Not scared-people	10	87.3	12.7	0
Likes way clothes look	11	91.5	8.5	0
Strong	12	69.0	28.2	2.8
Healthy	13	67.6	31.0	1.4
Likes way face looks	14	74.6	25.4	0

n = 70

Table 2

Brown IDS Self Concept Referents Test,
Distribution of Scores on Mother Referent Items.

Item Content	Item No.	Percent Selecting Positive Option	Negative Option	No Response
Happy	1	85.9	14.1	0
Clean	2	85.9	14.1	0
Good looking	3	77.5	21.4	1.4
Likes to play with	4	74.6	25.4	0
Likes to have own	5	67.6	32.4	0
Good	6	88.7	11.3	0
Likes to talk a lot	7	56.3	43.7	0
Smart	8	70.4	21.1	8.5
Not scared-things	9	81.7	18.3	0
Not scared-people	10	83.1	16.9	0
Likes way clothes look	11	83.1	16.9	0
Strong	12	60.6	38.0	1.4
Healthy	13	64.8	33.8	1.4
Likes way face looks	14	78.9	21.1	0

n = 70

References

Mead , G. H. Mind, self and society. In A. Strause (Ed.), *The social psychology of George Herbert Mead*. Chicago: Univer. of Chicago Press, 1956. Pp. 128-294

The Self-Social Constructs Test

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Introduction

The Self-Social Constructs Test was originally designed for use with neuropsychiatric patients and has had additional forms developed for use with normal preschoolers through adults.

The self-social symbols method involves manipulation on a paper and pencil test of symbols representing the self and others, using tasks with low visibility for the subject. It is assumed that the relationships seen in the symbolic arrangements represent relationships in the person's life space, and that these arrangements are readily interpretable, containing easily translated, common meanings. It is also assumed that the non-verbal mode is advantageous, and that a collection of specific measures reflecting a variety of dimensions adds precision and depth. Finally, all scoring is objective, permitting the use of standard statistical techniques. (For theoretical support, see references and the first chapter of the test manual.)

Self-Social Constructs Test

The following is a brief summary of each item type in the preschool form of the test, with pertinent reliability and validity information summarized for each item. The presentation is as it appears in the first draft of the *Manual for the Self-Social Symbols Method* (by Henderson, Ziller and Long).

Esteem

Instructions (oral). "These circles are children. You pick one to be you." DO NOT GESTURE. Place the child's first initial in the circle he chooses.

Scoring. Scores for each item range from one to five, from bottom to top. A higher score indicates higher esteem.

Reliability. Split-half, corrected for length: .65 (72 school beginners); .77 (96 school beginners).

Validity.

1. Lower esteem for Black school beginners than whites in two samples from rural south. ($p \leq .01, .05$)
2. Related to birth order to two samples of school beginners ($N \leq 96$ in each); later born children lower in esteem ($p \leq .05$ in each case).
3. Increase with age (beginning kindergarten to end of first grade, longitudinal study) $N = 45$, $p \leq .05$.
4. Ilg-Ames tests for school entrance. Children categorized as less mature, lower esteem ($N = 60$; $p \leq .05$).
5. Teachers ratings of classroom behaviors; lower esteem for children rated lowest in comparison with highest ($N = 50$; $p \leq .01$).

Social Interest (social dependency)

The three circles always represent other children. With the preschool form a gummed label (Dennison) is given the subject to represent the self.

Instructions. Preschool form (oral): "These circles are children. You paste yourself wherever you want to." (Child has already completed items in which the gummed label was used to represent the self).

Reliability. Preschool form, split-half, corrected for length .65 (72 school beginners); .75 (96 school beginners).

Validity.

1. (373 elementary school children) those placing self within triangle preferred significantly more "group" (vs. "individual") activities.
2. Low positive relationship age in two samples of school beginners.
3. Institutionalized adolescents, lower scores.
4. Lower class subjects, lower scores (four samples).
5. Less mature classroom behavior (teacher's ratings) lower scores.
6. Positive relation reading achievement scores; not related IQ (5th graders).

Identification

Stimulus persons may be varied. The adolescent elementary and preschool forms include the following: father, mother, teacher, friend. Identification with each person is measured with a separate item with the stimulus person (designated by initial or in preschool form by figure occupying the extreme left or extreme right position in the row).

Instructions. Preschool form (oral)· "Here is your mother. You pick a circle to be you, whichever one you like." DO NOT GESTURE. Write a child's initial in circle he chooses.

Scoring. Parametric scoring: One point self next to other; two points one circle intervening; three points, two circles intervening, etc. Lower score indicates closer relation to other person, thus higher scores indicates LESS identification. When reporting means, it may be helpful to reader to subtract score from 10. Non-parametric scoring· Since distribution of scores on these items is not normal (scores pile up at minimum score), non-parametric scoring may be advisable. One such system would involve categorizing the placement of the self as next to the other person or not.

Reliability. Preschool form, split-half, corrected for length:

Mother: .64 (72 school beginners); .52 (96 school beginners).

Father: .83 (72 school beginners); .85 (96 school beginners).

Teacher: .76 (72 school beginners); .57 (96 school beginners).

Friend: .77 (72 school beginners); .73 (96 school beginners).

Validity.

1. Sex: girls closer to mother (two samples); boys closer to father (two samples). Girls closer to teacher (two samples).
2. Father absence: less identification with father for those separated from father (three samples).
3. Grade: decreased identification with teacher and increased identification with friend over the grades (elementary school).
4. First graders rated "shy with teacher (by teacher) further from teacher than those rated "friendly."

5. Institutionalization: behavior-problem adolescents less identified with teacher and friend.

Other correlates.

1. Mother
    a. Grade, elementary school.
    b. Sex by grade, high school.
    c. Culture (Indians closer).
    d. Birth order (girls) furst born closer.
    e. Caste (lower caste closer)
    f. Socioeconomic class (lower class closer in three samples).
    g. Interaction, Ilg-Ames test and sex.
    h. Creativity, greater cross-sex identification for high creative.
2. Father
    a. Grade, elementary school.
    b. Sex by grade, high school.
    c. Culture (Indians closer).
    d. Socioeconomic class (lower further).
    e. Reading, high group closer.
    f. Teaching style, more democratic closer.
    g. Ilg-Ames test by sex.
    h. Family size, smaller size closer.
    i. Birth order, first born, closer.
3. Teacher.
    a. Socioeconomic class (lower closer, three samples).
    b. Reading readiness (lower scores closer).
    c. Culture (Indians closer).

d. Family size, larger family, less identification (two samples).

e. Birth order, first-born, closer.

f. Sex by reading interaction.

Individuation (realism color)

Stimulus presented to subject consists of rectangular area containing about ten symbols of two kinds (shaded or plain circles) with one of the two always in the majority. The same figure should not consistently be the majority figure. To the right of the rectangle the two figures are shown. These are alternated in the left and right position from item to item.

Scoring. One point is awarded on each item if the subject chooses a symbol which is different from the majority of the symbols within the rectangle. A higher score represents greater individuation or minority identification.

Reliability. Preschool form, split-half, corrected for length: .48 (96 school beginners).

Validity.

1. Twins, lower scores than non-twins.
2. Geographic mobility: movers higher scores.

Other correlates.

1. Grade: increased over elementary grades.
2. Sex: higher for boys, elementary sample.
3. Reading: high group, higher scores.
4. Race: Blacks lower.
5. Institutionalization: patients lower.
6. Family size: positive relation (Black school beginners).

Realism Size

Instructions. Elementary (oral): "These circles are people. First pick one to be your father. Put an F in it. Next pick one to be you. Put an S in it for yourself." Preschool (oral): "These circles are people. First pick one to be your father (or daddy). Next pick one to be you." (Put an F in circle chosen for father, child's initial in circle chosen to be himself.

Scoring. One to three points for circle representing child, from small to large. Higher score represents less realism. Mean scores may be subtracted from six for a more logical interpretation.

Validity.

1. Teachers ratings: children who get along better with peers, more realistic (Head Start sample).
2. Race: Blacks less realistic ($p \leq .10$) n (school beginners).
3. Reading readiness: higher scores readiness, more realistic (school beginners).

(Note: The following three items are relatively new; for this reason realibility and validity data are not as yet available.)

Preference

Stimuli consist of pairs of stimulus persons (all possible pairs of mother, father, teacher, friend). Each figure is drawn within a large rectangle. Gummed circle is used for self.

Instructions. Preschool form (oral). "Here is your daddy and here is your teacher. You paste yourself wherever you want."

Scoring. One point for the stimulus person chosen (points for stimulus persons accumulated over items). Higher score for the person represents more choice of that person. Scale is ipsative (i.e. scores for stimulus persons are not independent since a forced choice is required).

Field Testing

This instrument was field tested for several reasons: 1) The stimuli appeared too abstract for a preschool population; 2) there was some prior indication that the use of gummed labels might not be feasible with the population of interest; 3) the concept of self as being a gummed label and the direction to "paste yourself"... appeared to be potentially difficult for the young children to grasp.

Subjects. The 39 subjects were drawn from three classes in an urban midwest Head Start program. They ranged in age from 52 to 68 months at the time of testing. Ethnically, there were six Spanish-Americans, 23 Afro-Americans, nine Caucasians and an American Indian. There were 17 females and 22 males.

Testers. Three staff members of the MSU E&R Center functioned as testers. They were trained in the use of the technique, and all testers had experience in working with children. Two of the testers accounted for the data from 32 subjects, the third tester gathered data from the other seven subjects.

The instruction form used in field testing is shown on page 69.

Field test results. Anecdotal records from each of the testers indicates that the subjects had very little difficulty using the gummed labels (we made our own out of file folder labels cut to 25¢ size). The records also show that most children had no apparent difficulty treating the label as "self." The subjects also appeared to understand even the very abstract items which involved only various circles as stimuli. The only problem which did appear was due to test length. During about the last 1/4 to 1/3 of the test the subjects tended to become restless and less attentive.

A discussion of the forced-choice items has been omitted from the results section. These items form an ipsative scale and are therefore meaningful only within an individual's scores. Comparisons across subjects would not be meaningful: the items have differing interdependencies for each subject.

Inspection of Table 1 shows that the average response was at the score midrange in all cases but one. For the item labeled "dependency" the subjects tended to place themselves quite consistently within the triangle of stimuli thus earning a high average dependency score.

Within the field test sample, comparisons between mean total scores per group of items for Afro-Americans and others yielded several significant results (Table 2). Perhaps the most meaningful are the significant differences indicated by the F ratios from the three identification items: mother, father and friends. All of these are significant at $p < .05$. The other two items showing significant responses differences must be viewed with caution due to the very restricted range of scores which they involve. Nevertheless, there was a significant difference on the realism color item. As might be expected, Afro-Americans scored lower than the other subjects, where a low score is interpreted as realistic for the former and a high score for the latter.

Subsample comparisons of total score responses by sex and by age each yielded one significant F ratio at $p < .05$. Males showed significantly more dependency than females (again, this must be cautiously interpreted due to the very restricted score range). When the age distribution was split into 52-59 months and 60-68 months groups, a comparison of these groups on item total scores yielded a significant F ratio (at $p < .05$) for esteem. The older children tended to score higher.

The intercorrelations of the subtest totals are seen in Table 3 . This table was generated by Pearson-product-moment correlations, and hence its interpretability is somewhat limited for those scores with a very narrow range.

Multiple significance tests on the same data tend to give overlapping information. Recognizing this among the intercorrelations which were significant at $p < .01$, the highest ones occurred between: dependency and ID mother; ID father and ID friends; realism color and ID father; realism color and ID teacher. The relationship between dependency and identification with mother seems only reasonable in this age child. The other correlations suggest that this population views father and friends similarly; that the closer they feel to their teacher and father, the more realistic their color choices.

Reliability. Using the Hoyt's analysis of variance technique, an estimate of internal consistency reliability was obtained separately for each item group. (See Table 4.) The dependency items had an average reliability of .90, which is the highest of any item group. Interpretation of this is complicated by the distinct possibility of response perseveration and lack of understanding of the item.

The reliability coefficients are based on only two trials for the Realism and Identification groups of items. Considering this, the coefficients are low, but respectable, and might be increased with an increased number of trials per item group if it were feasible.

Validity. No validity data is available from this field test sample due to limited testing time and resources.

Administration of the Children's Self-Social Constructs Test

The CSSCT is administered individually and requires about ten minutes per child. There are six kinds of items in the test. For any one kind of item, the instructions given to the child are the same with only the name of the stimulus person varying. These stimulus persons are shown on page one and are: 1) mother, 2) father, 3) friends, 4) teacher (in order from left to right).

First, be sure to fill in all of the information on the cover of the test booklet.

For administration of the test you will need the test booklet, a supply of gummed labels, and a pen or pencil.

Seat the child at a desk or table with the test in front of him. The booklet should be positioned with the figures on page one right-side up for the child. The booklet must remain in this position for the entire test and you (the tester) will turn the pages for the child.

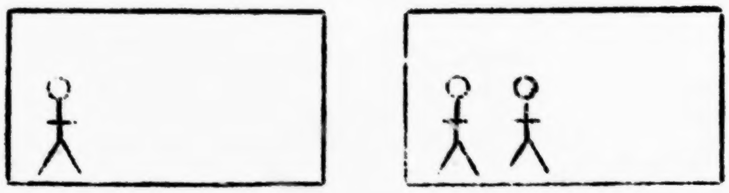
Turn to page one and say, "We are going to play a game. Do you see these people? That one is your mother (point to the first figure); that one is your daddy (or father); those are your friends; and that one is your teacher."

Turn to page two and say, "Now here is a book and here are some toys. This label stands for you (give the child a gummed label). You paste yourself with the book or with the toys, whichever you like. You'll have to lick the label to make it stick."

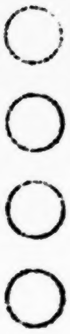
If the child does this, move on to the next page; if the child does not paste the label in either square, explain to him that he should paste himself in the square with the book or the toys, whichever he likes.

The items follow in order of appearance in the booklet. Use the same instructions for each of the six types of items. Remember to substitute the correct name of the stimulus person, according to the picture on the page.

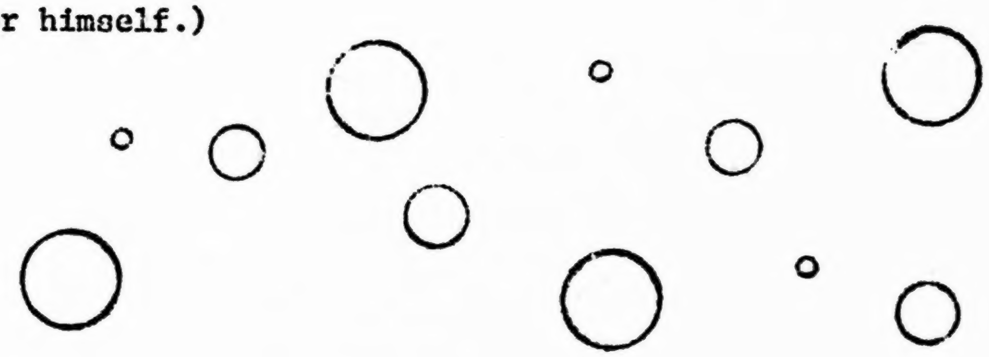
1. (Use a gummed lable.) Say, "Here is your daddy and here are your friends. You paste yourself with whichever one you want."



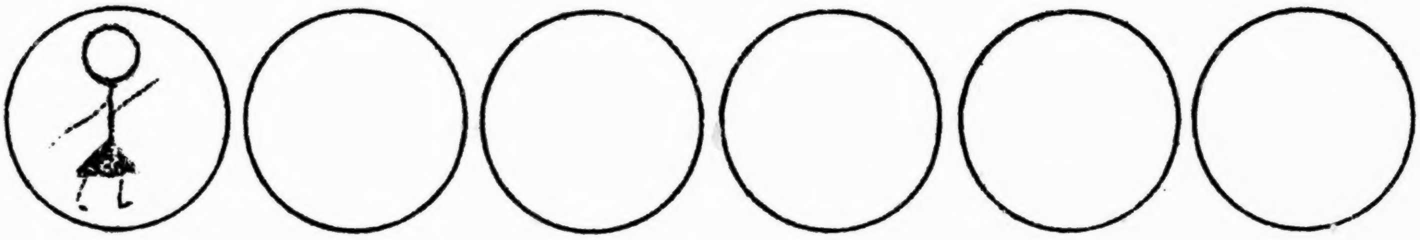
2. Say, "These circles are children. You pick one to be you." (Do not point or gesture.) Write child's initial in the circle he chooses.



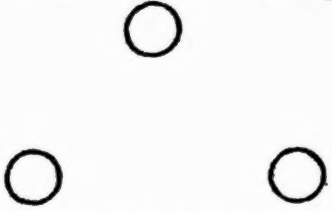
3. Say, "These circles are people. First, pick one to be your father (daddy). Next, pick one to be you." (Write an F in the circle chosen for father and the child's initial in the circle chosen for himself.)



4. Say, "Here is your teacher. You pick a circle to be you, whichever one you like." (Do not point or gesture). Write the child's initial in the circle he chooses.



5. (Use a gummed label.) Say, "These circles are children. You paste yourself wherever you want to." (Do not point or gesture.)



6. Say, "These circles (in box) are children. You pick one of these circles over here (point to the circles on the right) to be you." Circle the circle chosen by the child.

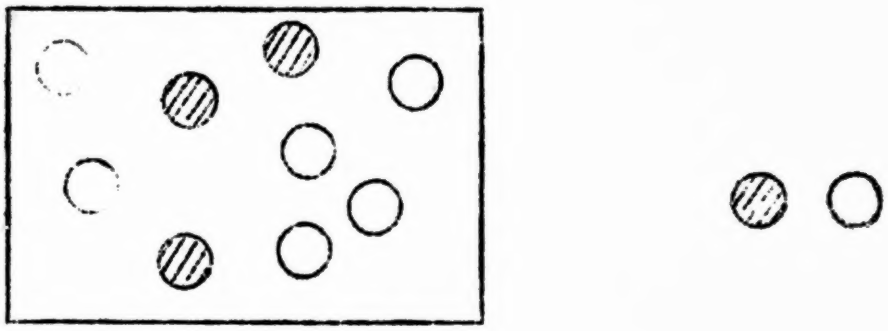


Table 1

Self-Social Constructs Test Item Group
Total Score Distribution in Field Test Sample of 39 Subjects

Item Group	Range of Possible Scores	Mean	Standard Deviation
Esteem	4-20	10.49	4.60
Dependency	0-4	3.62	1.04
Identification Mother	2-12	5.72	2.90
Identification Father	2-12	5.67	2.91
Identification Friends	2-12	5.54	3.16
Identification Teacher	2-12	6.28	3.14
Realism Color	0-2	.90	.85
Realism Size	2-6	4.59	1.21

Table 2

Self-Social Constructs Test, a Comparison of Item Group Mean Total Scores for Ethnic Groups

Item Group	Ethnic Group Means Afro-American	 Other	 $F_{1,37}$
	n=23	n=16	
Esteem	10.74	10.12	.16
Dependency	3.70	3.50	.33
Identification Mother	4.83	7.00	5.99 *
Identification Father	4.65	7.12	8.06 **
Identification Friends	4.70	6.75	4.34 *
Identification Teacher	5.74	7.06	1.70
Realism Color	.65	1.25	5.15 *
Realism Size	4.26	5.06	4.54 *

* Significant at $p < .05$

** Significant at $p < .01$

Table 4

Self-Social Constructs Test
Average Item Reliability for Each Group of Items

Item Group	r	Standard Error
Esteem	.68	2.27
Dependency	.90	.29
Identification Mother	.48	1.48
Identification Father	.53	1.40
Identification Friends	.69	1.24
Identification Teacher	.59	1.42
Realism Color	.55	.396
Realism Size	.55	.57

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Experimental Photographic Self Concept Test

Introduction

Research and general experience with children's tests involving pictures suggest that they do have an appeal for the young child. Further, experience indicates that colored drawings hold the young child's attention more than similar black-and-white ones; and that children tend to perform better on tests with colored drawings.

These results could be attributed to the increase in information contained in each drawing when color was added. An information increase in the input becomes increasingly important if one agrees with professional artists who maintain that line drawings are very complex as compared with nature which has only shadings. If the black-and-white drawings are complex, then color should help to reduce their complexity by adding information and making them more like nature.

Colored drawings still remain only complex approximations to nature. This and the verbal complexity inherent in many self concept instruments has led to the construction of a self concept test involving colored photographic descriptions instead of the usual polar adjective questions about the child.

Test Description

The instrument we are constructing involves a series of bi-polar adjectives, in picture form. There are to be four parallel forms of the instrument, for black girls, black boys, white girls and white boys. In each form of the test one particular child is the focus of attention in all pictures. Dress and hair style remain the same for this child throughout the sets of photographs in the form, and across forms dress for boys and dress for girls is as similar as possible.

The test is intended for use with preschool age children. It is specifically designed for meaningful use with disadvantaged as well as advantaged children. This implies that the backgrounds and props used in the pictures are as familiar as possible to both groups.

The approach is based on a child's real perception of himself, instead of the self-as-referent/self-as-object perceptions used in the Brown. It may prove feasible to ascertain the child's ideal perceptions of himself as well, but this must be field tested with preschoolers. The decision to use the real-ideal approach was made in light of the questionable validity of the child's responses to "self as object" and the long test that this approach necessitates.

Test Construction Outline

Our test construction outline is:

1. Polar adjectives are selected with reference to a specific rationale. Tests such as the Brown and the Woolner neglect to specify on what basis certain adjective pairs were included. The final selection involves consideration of the feasibility of obtaining photographs which portray the adjectives.
2. The level of verbal communication to be used in the test is considered. If the instrument is constrained to deal only

on a non-verbal, or very minimal verbal level, then it must be recognized that some of the more abstract adjectives such as the Brown contains will be extremely difficult to include. If an approach similar to the Gumpgookie is employed, then there is more latitude in the level of verbal complexity which can be used. In the latter case the photographs could be identical for some adjectives pairs, while words are used to fill in a description about the subject in the photograph, i.e., the photograph would occasionally serve mainly to fix the child's attention on the test.

3. Pictorial representations of the adjective pairs are designated, considering situations in which a child-actor might be expected to cooperate. With respect to the population for which the test is intended, the designated situations must be carefully constructed so that they do not involve either backgrounds or props which are quite likely to be unfamiliar to much of that population.
4. A pilot test is to be conducted using a few of the adjective pairs presented in two formats: photographic and realist colored drawings. This is to check the assumption that photographs do in fact represent the superior format. If it is the case that the colored drawings function equally well, test construction would be considerably simplified.
5. Assuming photographs to be a better approach, plans will be developed to obtain parallel sets of photographs for black

and white boys and girls. This makes the designations of picture situations crucial. The children-actors must be able to perform the tasks required, and the tasks must be structured to elicit cooperation with a minimum of difficulty. Photographs will be gathered in asfew sessions as possible, to control for physical changes in the children.

6. Subjects for the photographs will be selected so that there are several children in each of the four categories, and there are comparable pictures taken of each child in each designated situation.
7. Prior to test assembly and field testing, the reactions of representatives of the preschool population of interest to the photographs will be obtained. The purpose is to insure that subjects perceive the content of the photographs as intended, e.g., are happy or sad the most salient characteristics of the photographs of this situation?
8. After the individual pairs of items have been checked, the test will be assembled and piloted in final form.

Test Construction

The initial stages of test development have been concerned with mapping out the problem areas, ascertaining the mechanical and logistic difficulties likely to be encountered. To accomplish this, we applied steps (2) and (3) of the test construction outline to the adjectives used in the Brown IDS Self Concept Referents Test, temporarily assuming that their inclusion in the Brown was sufficient reason for consideration.

We attempted to obtain representations of a few of the adjectives in two formats: water-colored pen-and-ink drawings and colored photographs. The results indicate that the major difficulties can be anticipated at this point.

In the photography sessions, introducing a specific situation to the child in such a way as to obtain his cooperation proved to be a difficult operation. The clean-dirty situation is a good example. We found the children relatively unwilling to get poster paint on themselves for the "dirty" scenes, regardless of the game format of presentation, see figure 1 for example. On the other hand, they played as readily with colored chalk as paint, and the chalk play almost inevitably resulted in "dirty models, without ever having present a game specifically for getting dirty.

An example of another difficulty was met in attempts to illustrate "strong-weak" photographically. We decided to have the children carry large blocks for the illustration, carrying one block was to be "weak" and two blocks was to be "strong." The children were quite willing to play with the blocks but most of the children, it developed, lacked the coordination necessary to balance the blocks the way we had in mind for the "strong" picture.

The "happy-sad" illustrations were even more difficult to obtain. "Happy" occurred quite readily, but we were unprepared with a situation where the child would spontaneously display "sad" or where he would act "sad." This meant we had to simply wait for "sad" to occur, and hope we were ready to photographic it. This is, of course, a slow, uncertain business. We are now working with some ideas for presenting the situation to the child in such a way that he will be willing to act out "sad" for us.

Examples of the photographs for "weak-strong" obtained in the first session are seen in figures 2a and 2b.

It is clear that parallel forms will be especially difficult to obtain using the photographic format. We feel however that patience, considerable photography time and perhaps the allowance of a little more latitude for between forms variation than is absolutely ideal will yield a satisfactory instrument.

Considering the colored drawings we insisted on very life-like pictures, which it developed, were not to be obtained using pen-and-ink. Perhaps another medium, such as charcoal or pencil might be used to create pictures based on shadings rather than harsh lines. Watercolor appears satisfactory for the coloring medium for field testing purposes. A few examples of the colored drawings are seen in figures 3-10.

Examining the illustrations in both formats, problem of background for the illustrations is evident. In the photograph, the background is cluttered and is quite likely to be unfamiliar to the underprivileged child. The blocks themselves may also be quite unfamiliar.

The drawings of the girls carrying the blocks may well suffer from unfamiliarity to the underprivileged child. In addition to the potentially unfamiliar blocks, the background changes from the clutter in the photograph to an uninteresting corner of a room in the drawing. A compromise will obviously be necessary.

In the "clean-dirty" drawings, the problem lies with the choice of background situation. We selected one that is likely to be familiar to most children, but we may have erred with respect to content. The situation in the picture is one in which a child might reasonably expect to get dirty, rather than one in which he is represented as dirty, not necessarily as a result of his activity. The two kinds of situations, where the activity makes one dirty and where it doesn't quite represent different aspects of "clean-dirty."

In summary: We will continue to develop this instrument in the following year, bearing in mind the problems pointed up by these initial development steps, which have been conducted as part of the current task-force project.

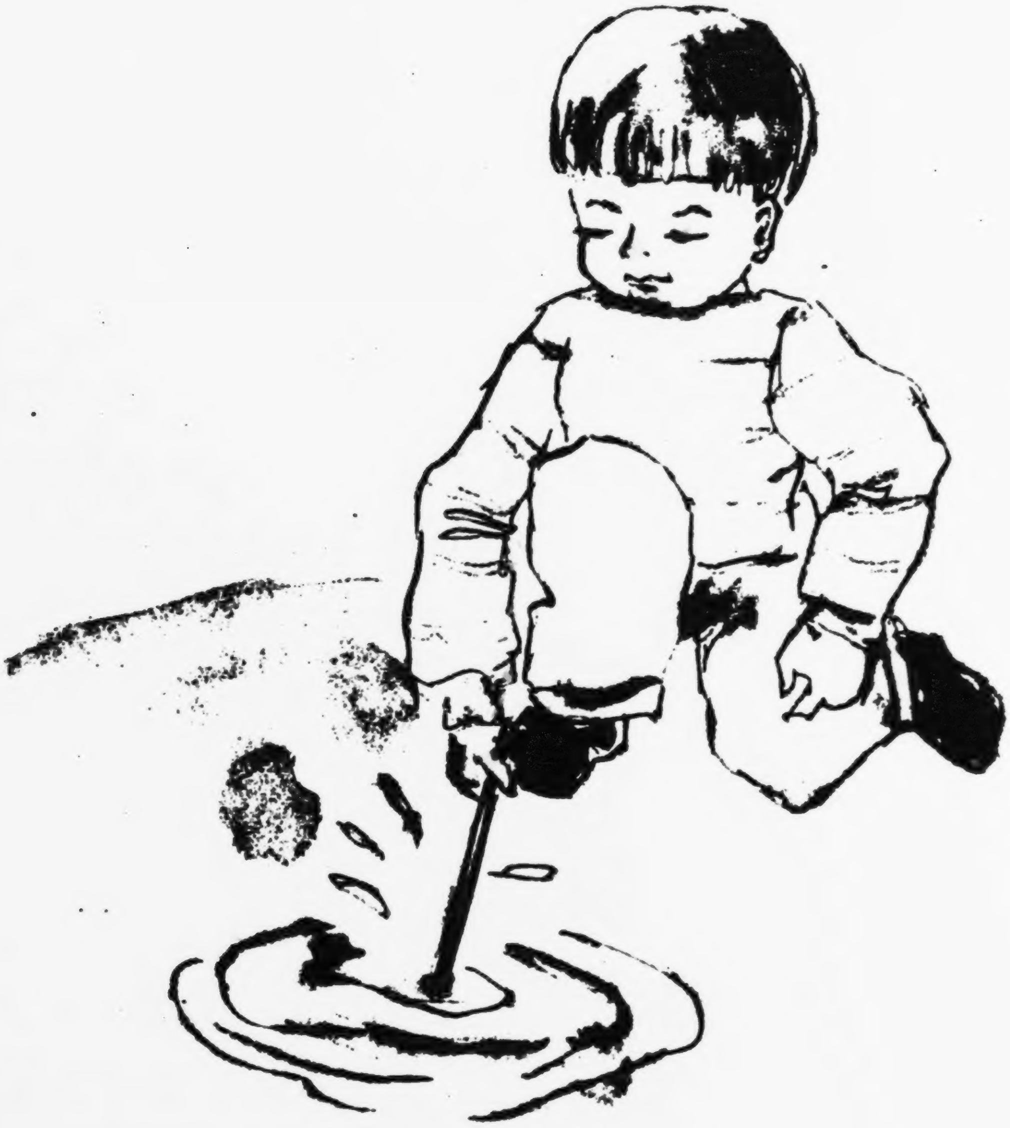

Figure 3: Clean

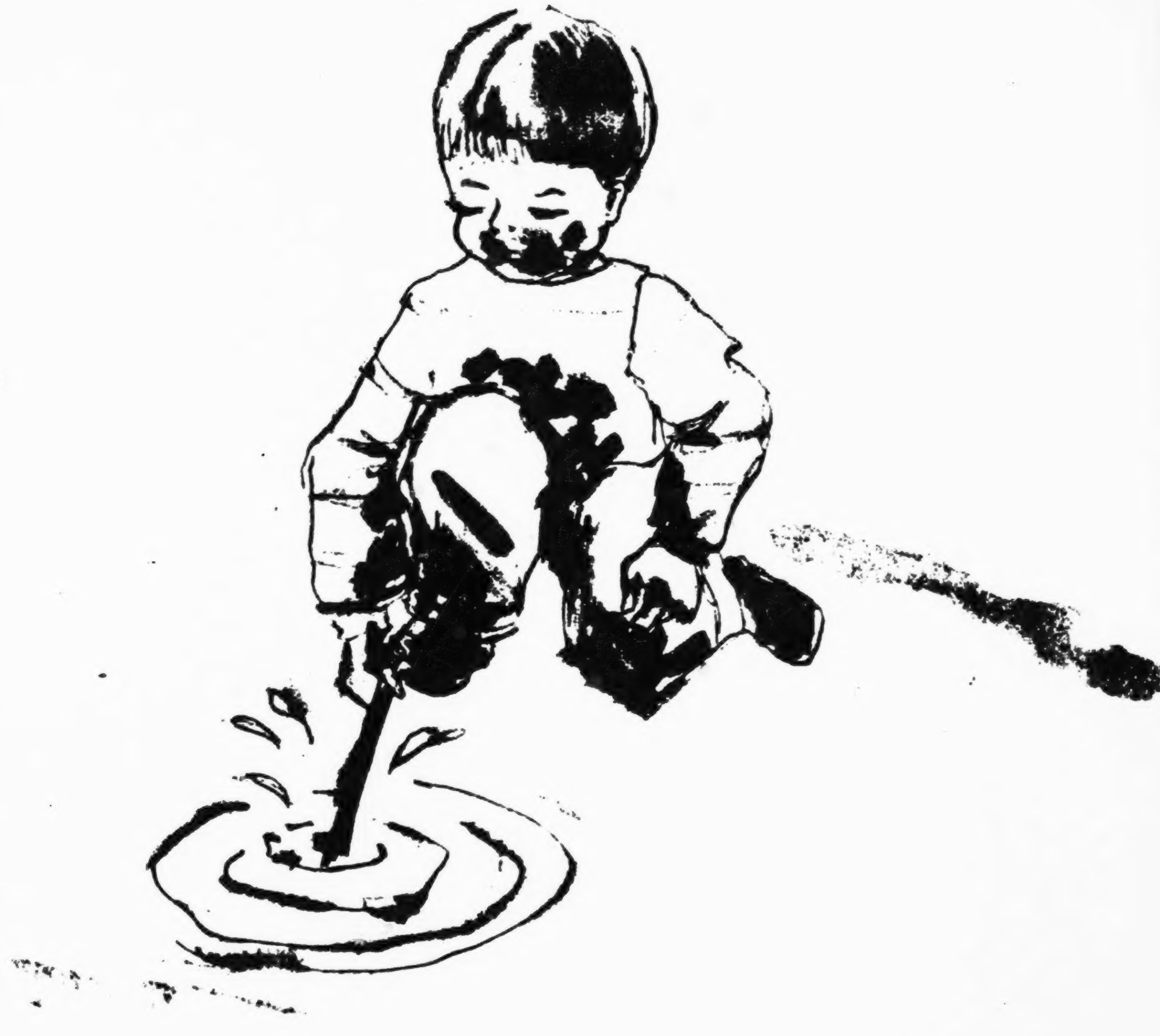

Figure 4: Dirty

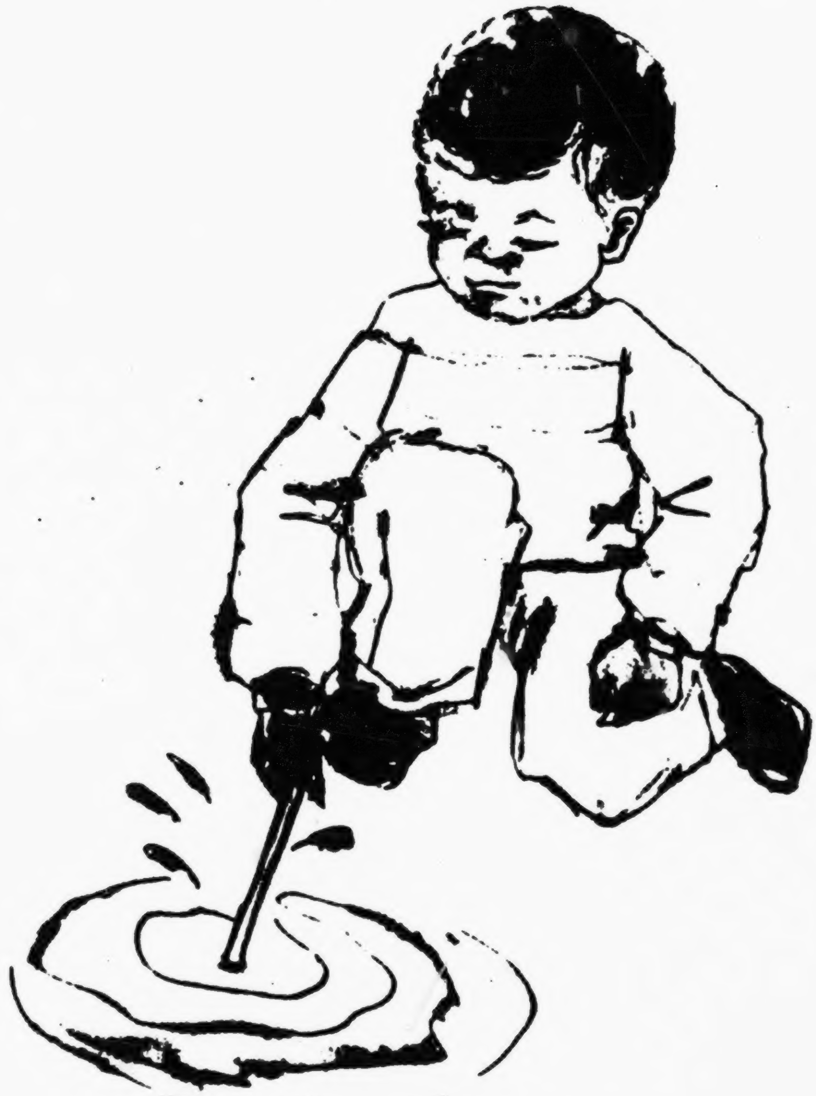

Figure 5: Clean

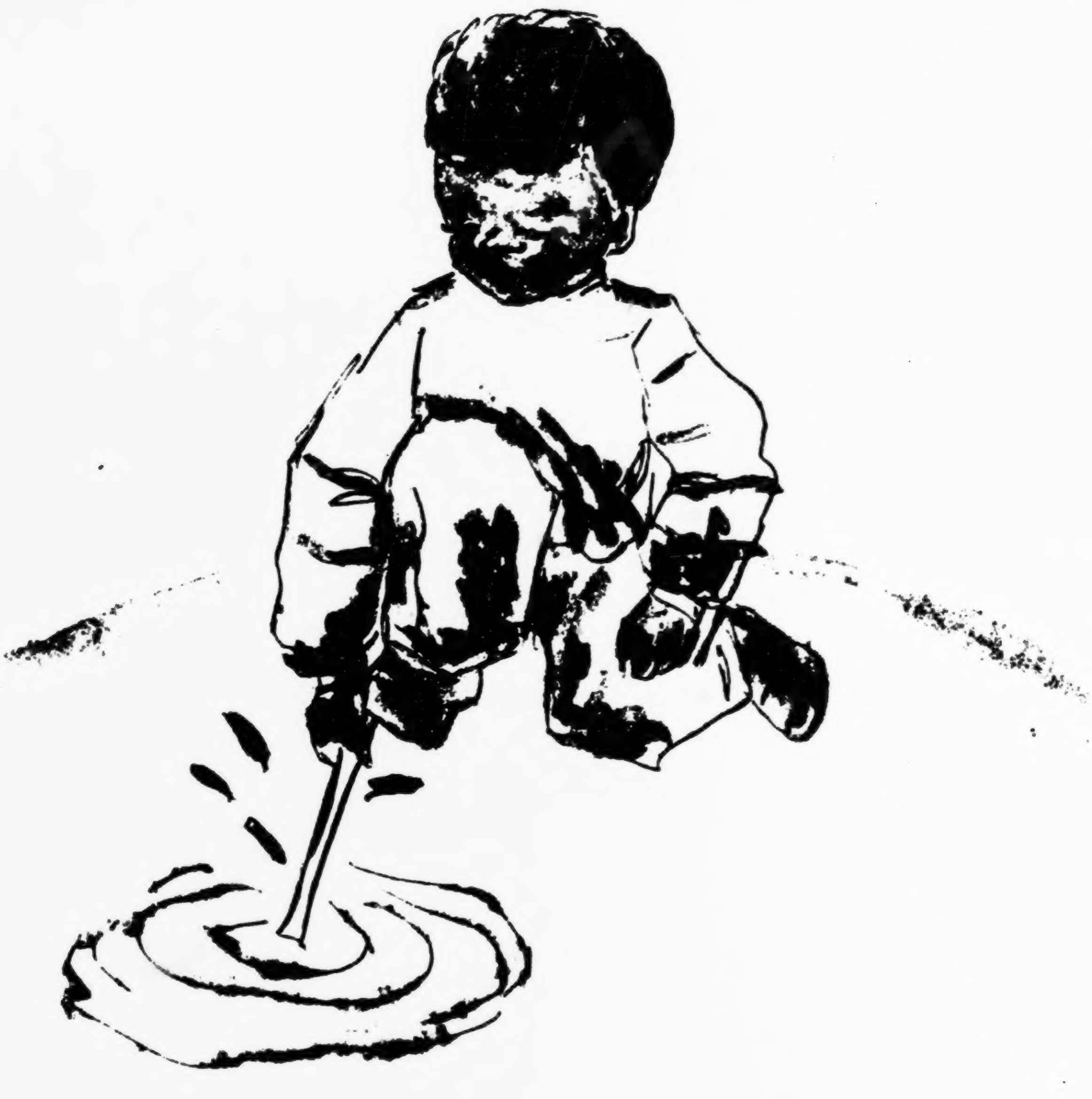

Figure 6: Dirty

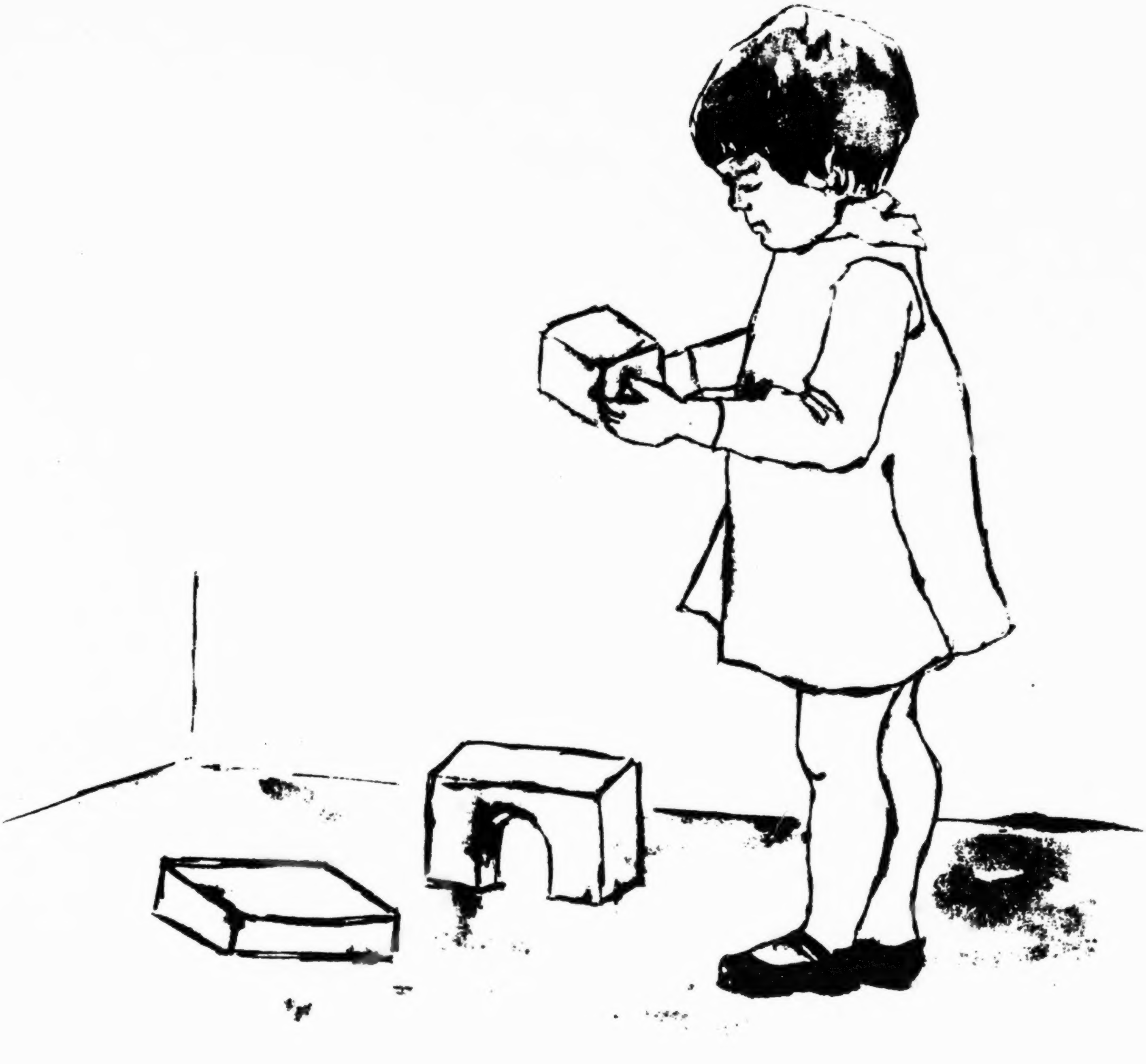

Figure 7: Weak

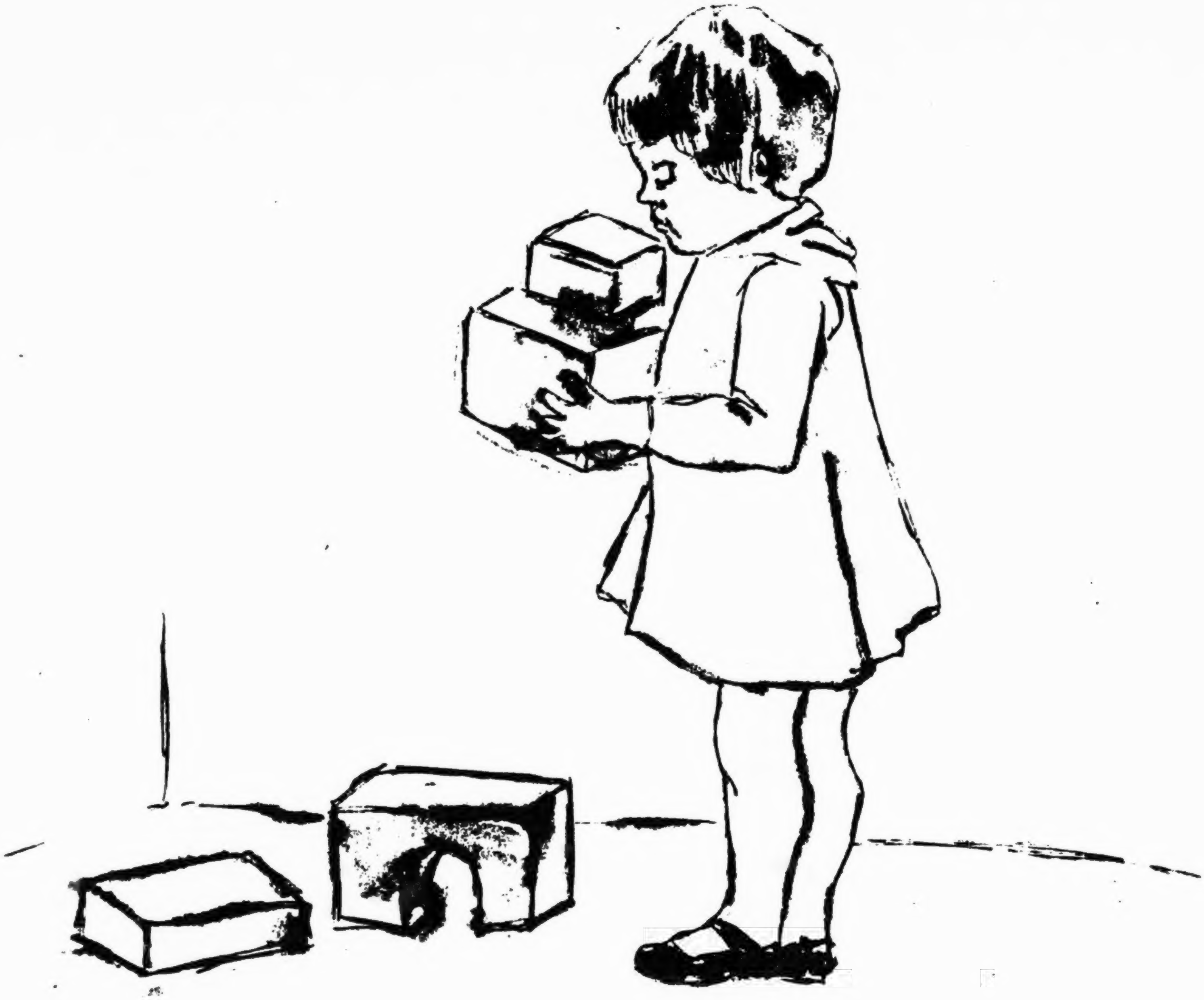

Figure 8: Strong

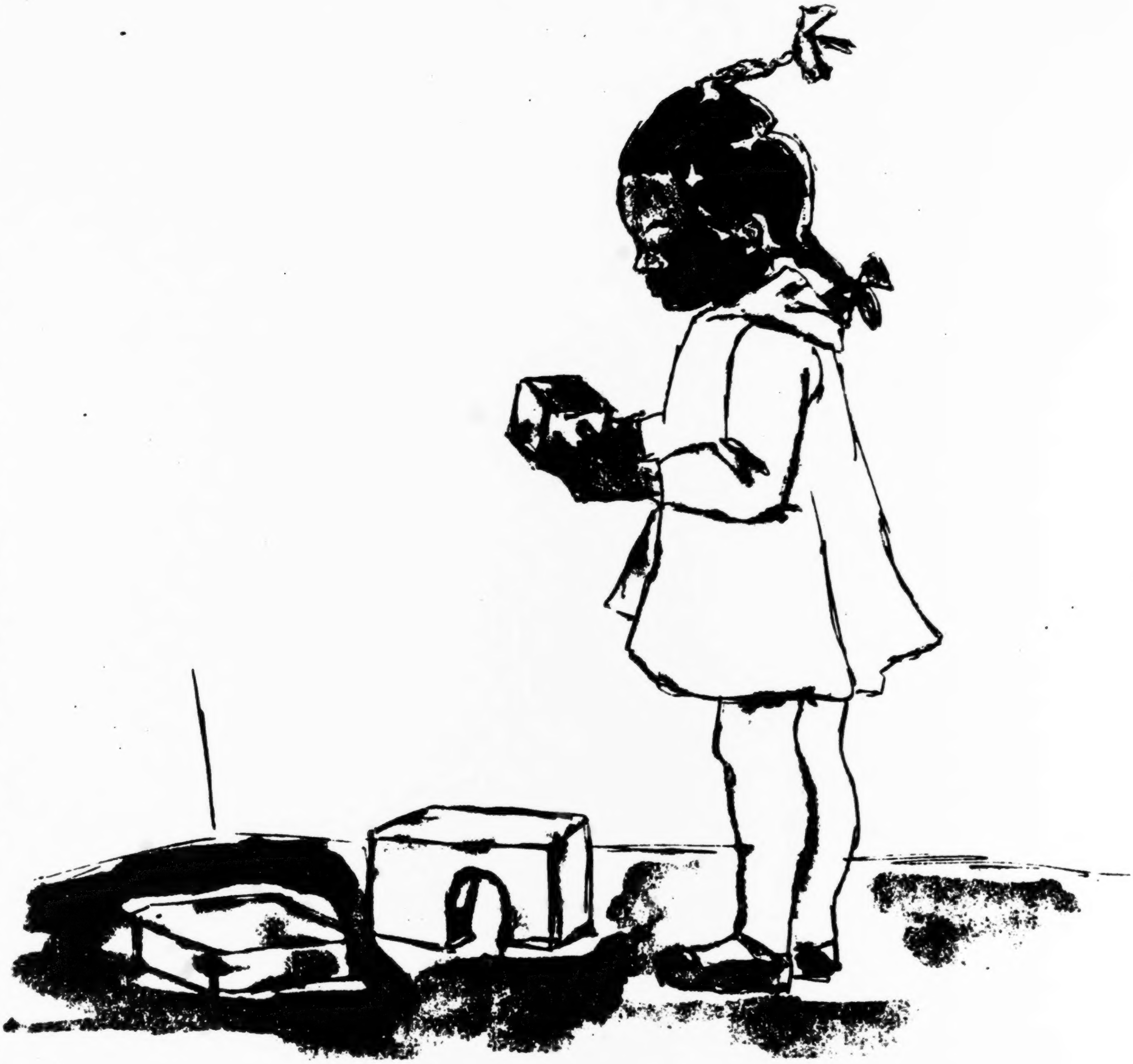

Figure 9: Weak

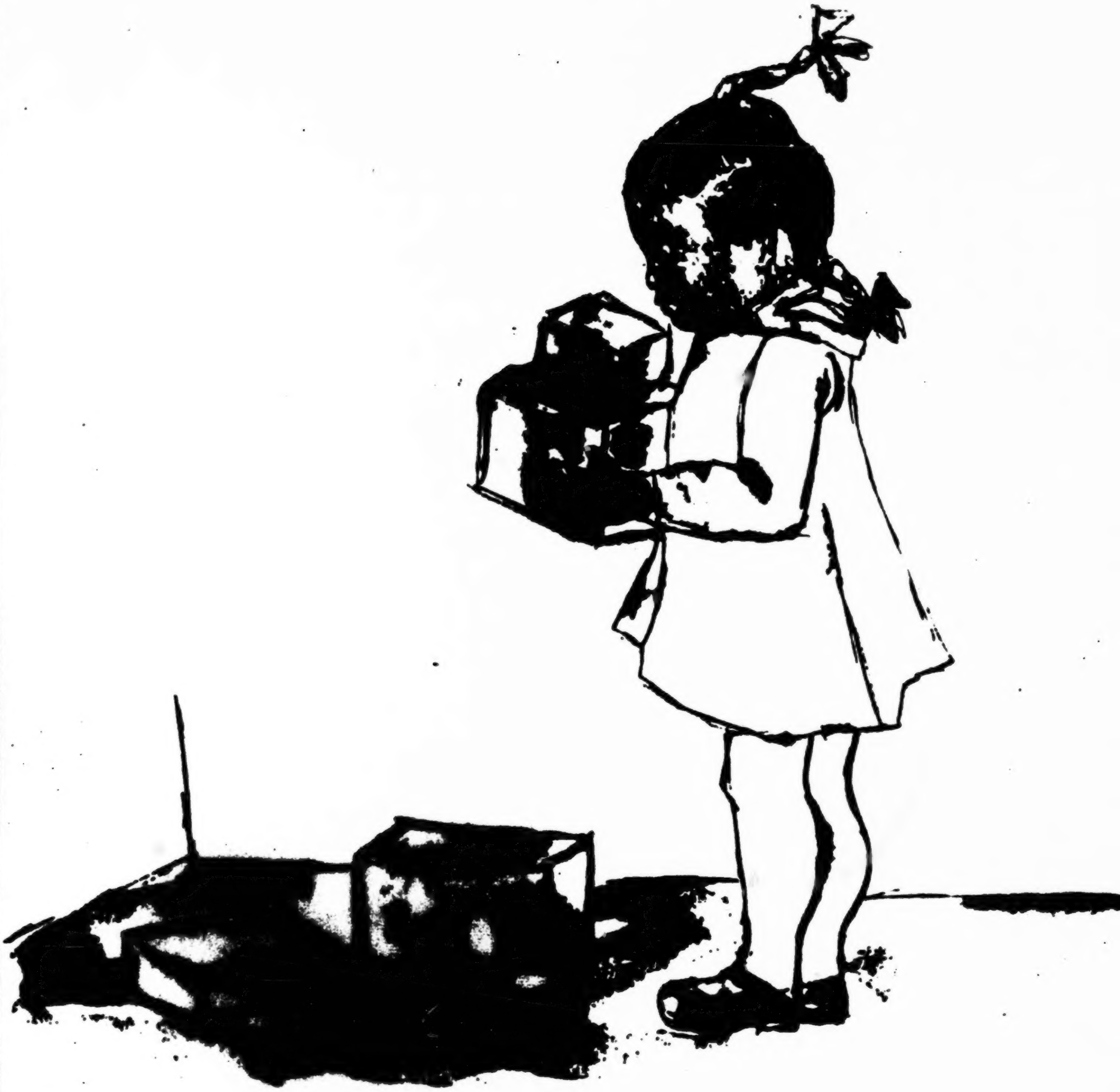

Figure 10: Strong

The MSU Puzzle Box Task

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Introduction

Frustration is a manifestly important variable, particularly for the young child. He is confronted with countless situations which are difficu for him, that are not readily resolved, that he cannot always be successfu in meeting. Frustration is here considered to be the emotional condition sometimes arising from a difficult, thwarting situation in which a child is prevented from receiving a reward or attaining a goal.

Comtemporary theories of frustration have tended to focus on the motivating and response-directing effects of frustration on general behavi Brown (1961) suggests two criteria which frustration must meet to be considered as a motivator: a) its presence facilitates or energizes a wide variety of responses; b) its removal given appropriate circumstances, act as a reward for new response learning. To date, research has been largel concerned with the response elicitation properties of frustration under specified conditions. The reward effects of frustration removal, however have had little attemtion except in casual observations.

Assuming that frustration is a motivator, as the behavior elicitatio research strongly suggests, it is tenable to assume that frustration reduction or removal reinforces the behaviors upon which that reduction o removal is contingent. If this is the case, the way the child responds t new thwarting situations will depend upon the repertoire of behaviors he has learned from past successful or partially successful experiences with frustration. It is this behavior repertoire, the manner in which the child typically deals with frustrations that is of particular interest here. In short, the focus is on the child's ability to cope with the affective condition arising from thwarting.

Failure can be defined as a frustrating situation, as it involves complete thwarting of a goal-directed response. Further, it can be considered to be the lack of immediate success following an attempt to deal with the situation. It is the latter condition which Keister (1943), Zunich (1964) and Banta (1968) consider in their work. Keister, along with several colleagues, developed a task with appeal for preschool age children. The task, a puzzle box, had a solution but was sufficiently difficult to thwart immediate success by the young child. Using a time sampling technique and a check list observation schedule, they observed the child's behaviors accompanying this lack of immediate success. The study showed that the majority of the children's responses to this type of situation consisted of attempts to solve the task alone and displays of interest in the task.

Zunich (1964) modified the Keister puzzle box for use in a study of sex and age differences in response to frustration-failure. A revised Keister observation schedule was also developed involving alterations and regroupings of sets of behaviors. The Zunich results indicated that most subjects tried to solve the puzzle alone. The most frequently occuring behaviors were emotional responses, facial expressions, and information seeking behavior.

Age differences in response appeared in several areas. Children four years of age expressed more rationalizing behavior and showed more facial expressions than did the three year old subjects. On the other hand, three year olds responded with more instances of no attempt to solve the puzzle, seeking help and seeking information.

There were also sex differences in response to the task. Boys showed more emotional, destructive, rationalizing and help seeking behaviors, as well as more facial expression responses than girls. The girls showed more seeking of help and contact and attempts to solve the problem alone than did their male peers.

Banta (1968) modified the Keister box still further, changing some of the puzzle piece shapes, altering the puzzle from a box to a board, permanently affixing some of the pieces, and enlarging the overall puzzle size. This new puzzle board was used to observe preschool children's persistence in working on the puzzle and their resistance to distraction. Scoring and analyses of goal-directed and non-goal-directed behaviors showed that children in this test norming sample displayed a high degree of goal-directed or persistent behavior. The persistence scores have a possible range of 0-24, and the norming sample had a mean persistence score of 20.70 with a standard deviation of 4.02. (See Table 3, Manual for the Cincinnati Autonomy Test Battery.)

The MSU Puzzle Box

The puzzle box task being developed as part of this year's task force effort consists of a further synthesis of the foregoing approaches. The

Keister puzzle box (see Figure 1), the Zunich observation schedule and aspects of the CATB task were combined. The resulting instrument is a box (see Figure 2) with puzzle pieces large enough to be easily manipulated by young children but still quite difficult to solve, while providing a relatively novel task for most of the children. Initial field testing indicated that our first task was too easy. We attempted to increase the puzzle difficulty by leaving an additional puzzle piece, the boot, movable. This task was then field tested more extensively.

The MSU puzzle box measures 14 3/4" by 13 5/8" by 1 1/2" deep. The lid is 1/2" plywood, the base is 3/4" playwood and there is slightly over 1/4" clearance inside the box. The puzzle pieces are all of 1/4" plywood Medium blue was used for the box exterior, and white for the interior of the base. The puzzle pieces were light green for the boy and pear, yellow for the boat and plane, red for the horseshoe, duck and truck, and dark blue for the plant and rabbit.

Prior to the initial field testing, the observation schedule seen in Figure 3 was devised. It is a combination of the CATB observation schedule and the Zunich behavior categories. An observation unit of twenty seconds was selected as being long enough for adequate observation of the child's behavior, with minimal observer difficulty. The five second unit used by Zunich and Keister appeared to be too demanding of the tester, while the thirty second observation unit used in the CATB task would have yielded too few observations within the total testing period.

The definitions of the behavior categories used in the observation schedule in Figure 3 are as follows (from Zunich, 1964, p. 20):

a. Attempt to solve alone. E.g., child tries to solve puzzle alone.

b. Destructive behavior. E.g., child intends to harm the object or persons connected with the difficulty. Example: Child throws the object(s) or pushes it/them off the table.

c. Directing. E.g., child specifically states the course of action which he wants the adult to follow. Example: "Put that part there," "Give me the red one."

d. Emotional response. E.g., child cries, yells, sulks, laughs, and whines.

e. Facial expression. E.g., child closes eyes, tightens mouth, becomes red in face, hangs out tongue, chews lips, and grinds teeth.

f. Motor manifestation. E.g., child stamps foot, moves body, clenches fist, sucks thumb, waves with hands, and pulls on ear.

g. No attempt. E.g., child makes no attempt to solve puzzle, and gives up almost at once or without exploring many of the possibilities of solution.

h. Rationalizing. E.g., child refuses to continue the solution. Example: "I don't want to do this." "This is a stupid puzzle."

i. Seeking attention. E.g., child calls attention to himself or his activity. Example: "Look what I did."

j. Seeking contact. E.g., child asks adult to come into physical contact with him. Example: "Come over and sit by me."

k. Seeking help. E.g., physical: Child asks adult to help him with some difficulty connected with the activity. Example: "I can't put this piece in -- hold this for me." Mental: Child asks for ideas in trying to solve the problem. Example: "What can I do now?" "How can I put this in?"

1. Seeking information. E.g., child questions in pursuit of factual knowledge. Example: "What kind of puzzle is this?" "What is this for?"

Instructions for the test administration were also developed. They bear a close resemblance to those of the CATB task, but they have a unique feature. In order to give the child a feeling of closure, as well as a success experience with the task, the tester helps the child to solve the puzzle following the period of observation. To help insure that the test could be meaningfully administered a second time, the child is really only left to replace the last puzzle piece: the boy.

Field Testing

The MSU puzzle box task is a new instrument still undergoing development. Therefore, this field testing served as a trial run for the initial form of the instrument. The emphasis, for this test, has been on test development rather than on norming of the finalized instrument.

Subjects. The 39 subjects were drawn from 3 classes in an urban midwest Head Start program. They ranged in age from 52 to 68 months at the time of testing. Ethnically, there were 6 Spanish-Americans, 23 Afro-Americans, 9 Caucasians and an American Indian. There were 17 females and 22 males.

Testers. Three staff members of the MSU E&R Center functioned as testers. They were trained in the use of the observation schedule, and all testers had experience in working with children. Two of the testers accounted for the data from 32 subjects, the third tester gathered data from the other 7 subjects.

Reliability. Inter-rater reliability was established between pairs of raters, observing children who were not included in the field test subject pool.

The reliability estimate was determined by calculating the total number categories which were checked by ovserver A and observer B, i.e., the total number of agreements, divided by the total number of categories which one or both observers ehcked, i.e., agreements plus disagreements. Agreement was considered to exist if the two observers checked the same categories in the same time periods.

Each pair of observers observed 5 children, and the percent of agreement, or reliability, ranged between 73% and 83%, with a low of 67% in one instance.

The reliability figures are indicative of several things. First, observer training should extend beyond the format of a meeting to discuss the observation schedule, followed by 2 or 3 practice sessions, and a final meeting to talk about the observations in the practice trials This approach had to be used for the current field testing.

Second, the inter-rater reliabilities reflect the fact that definitions and examples given in the Zunich behavioral categories which we used were insufficient. The field testing was necessary to obtain more information about the kind and range of behaviors the task would elicit. Lacking this information, the judges found it difficult to consistently agree on the categories to be checked in the presence of behaviors not included in the Zunich list.

The Zunich behavior category list was revised on the basis of the field test. See page 114 and Figure 4 for the revised list and observation schedule.

Validity. This field testing did not involve a validity check with an external criterion. The omission was due in part to the brief time available for testing, and in part to a difficulty in identifying feasible external criteria. Given the opportunity however, one criterion might be teacher ratings of each subject with respect to the behaviors in the puzzle box observation schedule.

The puzzle box does have face validity for the field test population. They appeared to readily accept the task as a puzzle, and to display an interest in it. Puzzles were not unfamiliar games for most of these preschool children as their classrooms were usually equipped with them.

Puzzle difficulty. Of the 30 subjects who attempted the puzzle task when the boot puzzle piece was left moveable, only 3 succeeded in solving it within 5 minutes. Anecdotal records suggest that 2 of these solutions may have been due to a particularly slow presentation of the task.

However, to insure adequate task difficulty in future test administrations, several procedural alterations were made (see page 116 for the revised instructions). The puzzle is to be open with the lid to E's (the tester) right when the task is first introduced. Second, when all the puzzle pieces are removed the subject may begin the task, removal is as follows: the horseshoe picked up first and then the boy is picked up so that it is beneath the horseshoe. These pieces are placed in front of E. Then, as before, the plane, pear and boot are removed together, the plane is picked up first, then the pear, followed by the boot. This stack is placed on top of horseshoe. The overall removal must be done quite quickly.

Third, after the puzzle pieces are removed, the box lid is to be moved to an upright position so that the box can be rotated 180°. The lid is now opened on E's left. The puzzle pieces are placed to E's right, beside the box. Moving the box alters the relative positions of the puzzle pieces to the subject, thus making any memorized positions more difficult to locate.

Prompting. Field testing also made it evident that the policy on prompting the subject should be changed. The instructions to the tester were therefore altered, to allow prompting in the form of "can you close the lid?" or "is the box shut?" when the child behaves as though he believes he has solved the puzzle. Any other prompting is to be avoided. If the subject asks questions, the tester is to be very busy checking the observation schedule. This is to avoid inadvertent reinforcement of behaviors.

Field test results. In view of the inter-rater reliability levels, the results of statistical comparisons within the sample would be suspect, hence only the percent of total responses which occurred in each behavior category are presented in Tables 1-3.

The results from all of the subjects, indicated in Table 1 suggest that several of the categories might be combined with other categories, or deleted. The categories of destructive behavior, directing behavior, seeking contact, seeking physical help, seeking information and rationalition were used infrequently, and hence might reasonable be considered as candidates for deletion or combination with other categories. These decisions, however, we feel should await a second more extensive trial testing of the revised instrument.

It is clear from these results that about half of the behaviors elicited by the instrument were concerned with attempts to solve the puzzle alone. This is in agreement with both the Keister and Zunich results. In a sense the children displayed considerable persistence, when attempts to solve alone are interpreted as persistent behavior, and this is in agreement with the Banta data. This result appears to hold across the subpopulations of male and female; Afro-American and others. (See Tables 2 and 3.)

When the test performances of males and females are compared, the largest differences occur in emotional responses, motor responses, instances of no attempt and seeking information. Females seem to respond with a higher proportion of emotional behavior, motor responses and no attempts. Males tend to display more information seeking behavior.

A comparison of the data from Afro-American and other children indicates potential response differences in the categories of emotional responses, facial expressions, no attempts, and information seeking. The Afro-American children tended to give a higher percent of facial expression responses, and information seeking behaviors. Caucasian children tended to give a higher percent of emotional responses and instances of no attempt.

Future test development. The instrument, observation schedule, behavior definitions and test instructions are now ready for another trial run. It is quite possible that the observation time unit should be reduced to 10 seconds, and this should be investigated. The level of difficulty of the task should be further investigated as well.

Another, more extensive field testing, should also allow decisions to be made about further alteration of the observation schedule. If the frequency of use of some of the categories parallels the results from this field test, then it might be most parsimonious to combine categories or eliminate those which are consistently left unused.

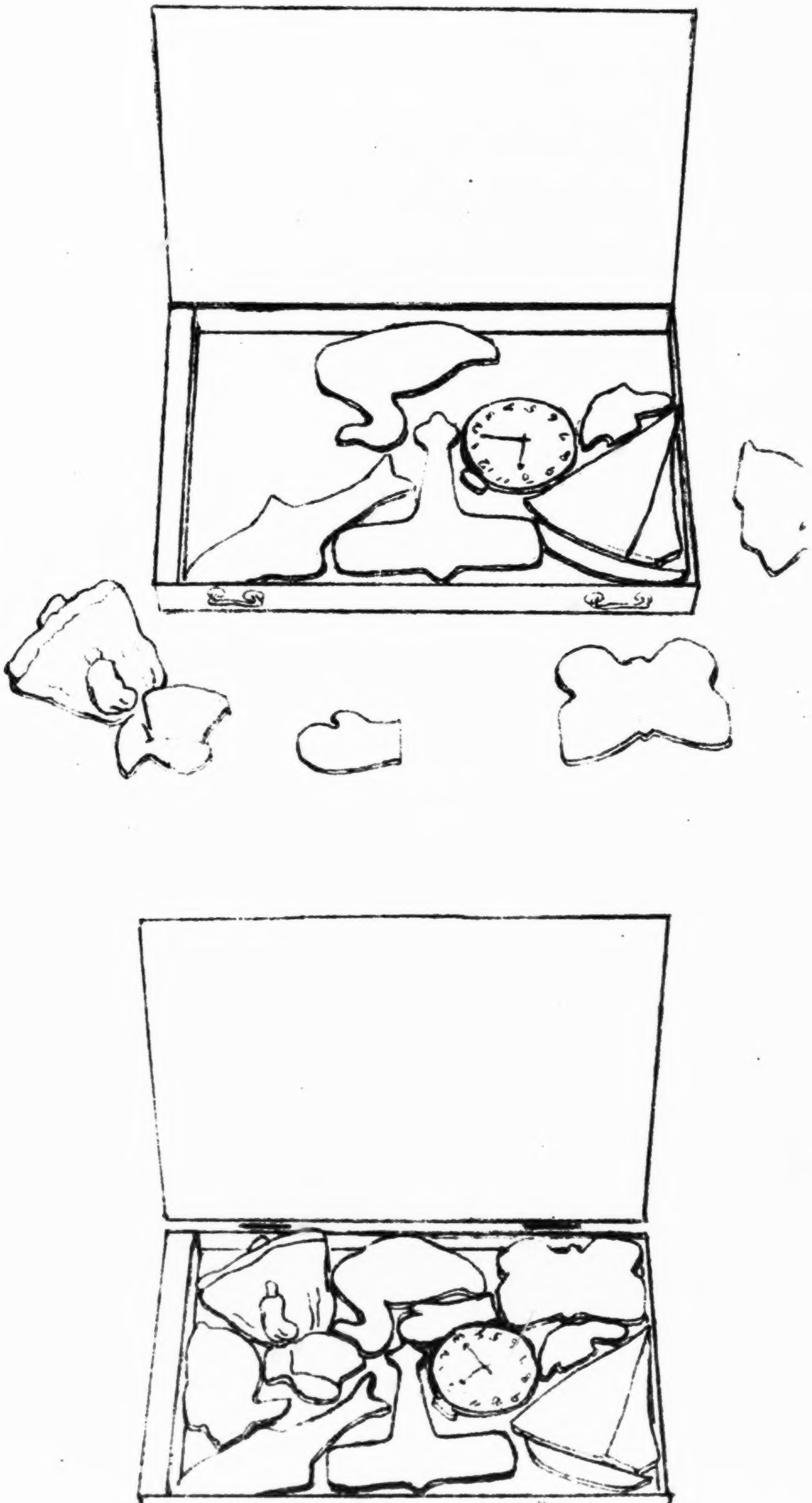

Figure 1

Keister Puzzle Box

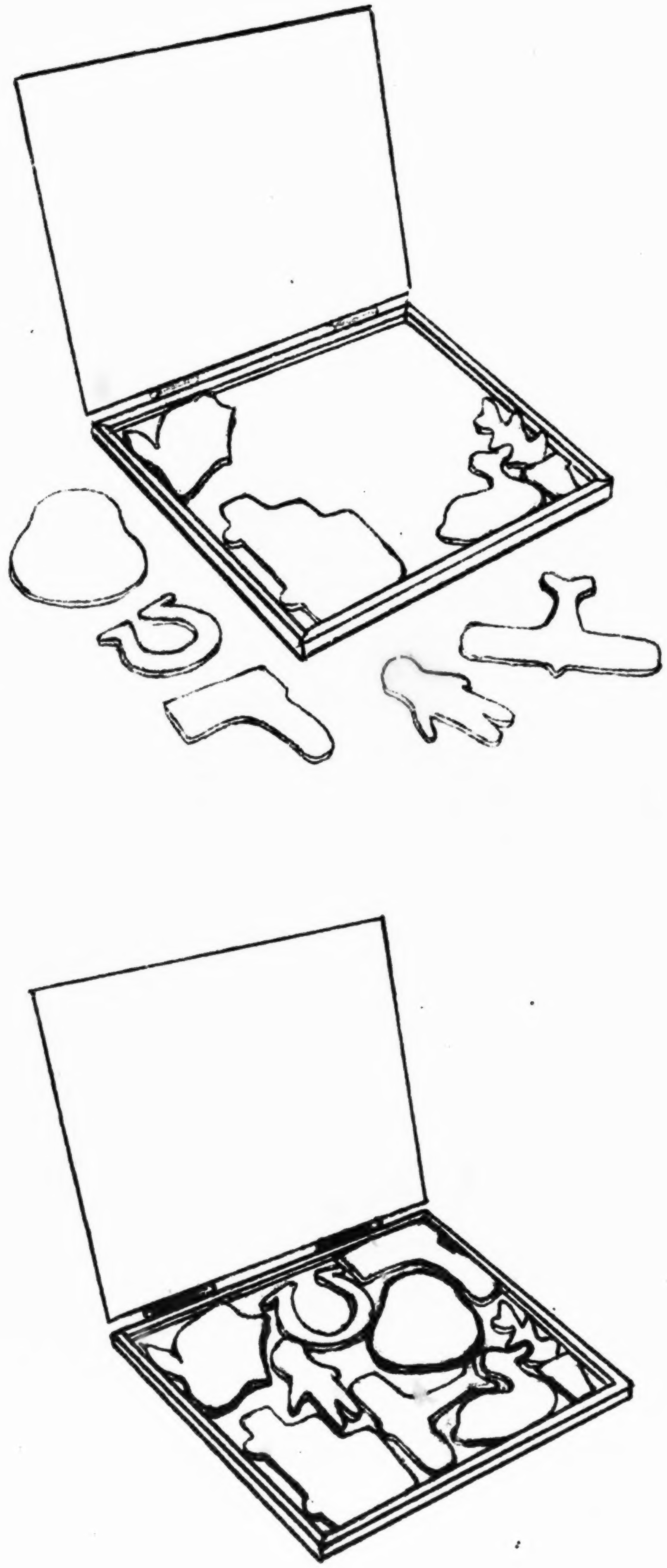

Figure 2

MSU Puzzle Box

Figure 3

Child's Name ______________________________ (code #____________) MSU Puzzle Box Task Observation Schedule

Time	Attempt Alone	Destruc. Behav.	Directing Behav.	Emotion. Resp.	Facial Express.	Motor Resp's	No Attempt	Ration-alize	Seeking Attent.	Seeking Contact	Seeking Phy.	Help Ment.	Seeking Infor.
20"													
40"													
1'													
1-20"													
1-40													
2'													
2-20"													
2-40"													
3'													
3-20"													
3-40"													
4'													
4-20"													
4-40"													
5'													
TOTAL													

Figure 4

Name____________________ Code #________

MSU Puzzle Box Observation Schedule

	Verbal Responses										Non-Verbal Responses				
time	nprv	direc	emot	rat	sk att	sk con	sk inf	sk mh	sk ph	PROMPT	no att	destr	face	motor	sl val
20"															
40"															
1'															
1-20"															
1-40"															
2'															
2-20"															
2-40"															
3'															
3-20"															
3-40"															
4'															
4-20"															
4-40"															
5'															
Total															

MSU Puzzle Box
Observation Category Definitions and Descriptions

a. Attempt to solve alone (slv al). Non-verbal response, e.g., child tries to solve puzzle alone.

b. Destructive behavior (destr). Non-verbal response, e.g., child intends to harm the object or persons connected with the difficulty. Example: Child throws the object(s) or pushes it/them off the table. He pounds very heavily on one puzzle piece with another.

c. Directing (direc). Verbal response, e.g., child specifically states the course of action which he wants the adult to follow. Example: "Put that part there," "Give me the red one,"

d. Emotional response (emot). Verbal response, e.g., child cries, yells sulks, laughs, whines, and sighs.

e. Facial expression (face). Non-verbal response, e.g., child closes eyes, tightens mouth, becomes red in face, hangs out tongue, chews lips, and grinds teeth.

f. Motor manifestation (motor). Non-verbal response, e.g., child stamps foot, moves body, clenches fist, sucks thumb, waves with hands, and pulls on ear.

(NOTE: These actions are not directly connected with puzzle solution. Moves such as picking up a dropped puzzle piece, reaching for another piece, closing the lid and shifting position to more easily reach the box during attempted solutions and eye contacts are NOT in this category.)

g. Non-puzzle related verbal (nprv). Verbal response, e.g., talking not related to the task. Example: "Why is the window open?" "I've got a brother."

h. No attempt (no att). Non-verbal response, e.g., child makes no attempt to solve puzzle, he sits or moves about, does not attend to the task.

i. Prompting (prompt). Response made by the examiner to the child, when the child indicates in some way that he feels he has finished the puzzle, but has not closed the box, or, he is finished and has closed the box, but it doesn't shut completely. Example: "Can you close the lid?" "Is the box shut?"

j. Rationalizing (rat). Verbal response, e.g., child offers an explanation about why he is having difficulty with the task, or why he has stopped attempting to find a solution. Example: "This piece doesn't fit," "I don't know how," "I don't want to do this," "This is a stupid puzzle."

k. Seeking attention (sk att). Verbal response, e.g., child calls attention to himself or his activity. Example: "Look what I did."

l. Seeking contact (sk con). Verbal response, e.g., child asks adult to come into physical contact with him. Example: "Come over and sit by me."

m. Seeking information (sk inf). Verbal response, e.g., child questions in pursuit of factual knowledge about the task. Example: "What kind of puzzle is this?" "What is this for?"

n. Seeking mental help (sk mh). Verbal response, e.g., child asks for ideas in trying to solve the problem. Example: "What can I do now?" "How can I put this in?"

o. Seeking physical help (sk ph). Verbal response, e.g., child asks adult to actively help him with some difficulty connected with the activity. Example: "I can't put this piece in -- hold this for me."

MSU Puzzle Box Task
Revised Basic Instructions

The examiner (E) begins by introducing the puzzle box as a game for the child (S) to play.

E: Here is a game for you to play.

(The puzzle box is placed with the hinges on E's right)

E: The box has something like a puzzle inside,

(E opens the box and indicates the puzzle)

E: but there are spaces between the pieces.

(E shows the spaces between the pieces)

E: Some of the pieces come out. The boy comes out.

(E takes the boy out.)

E: When we put it back, it must not be on top of the other pieces -- it must fit flat, or we won't be able to close the box.

(E first rests the puzzle piece on an adjacent piece)

E: See, if it isn't flat, and we try to close the box, the box won't close all the way. Rub your hand here, (have child rub his hand across the crack in the box between the bottom and the lid at the front of the box) and feel how the box isn't shut tight. If we put the boy in flat,

(E opens the box and puts the boy in flat)

E: We can shut the box. Feel how the box is shut now.

(E again rubs the child's hand across the space between the lid and base at the front of the box.)

E. Now you try putting the boy in so that the lid will close.

(E opens the box and hands the boy to S, and has S put it in correctly and shut the lid.)

E: Good. Now I am going to take some of the pieces out.

(E quickly removes the loose pieces, stacking them in front of himself. The pieces are removed as follows· first the horseshoe is picked up and then the boy is picked up so that it is beneath horseshoe, these two are then put in front of E. Next, the plane is picked up, followed by the pear and the boot, each piece being picked up so that it is beneath the others. The last three pieces are then added to the stackf of pieces.)

E: Now the game is to see if you can put the pieces back into the box and close it.

(E partially closes the box -- enough to make it convenient to turn -- and rotates it 180°, so that the hinges are on his left. E opens the box again. E then moves the puzzle pieces to the side of the box on his right, within easy reach of the child.)

E: Go ahead, let's see if you can do it.

****

Observe child for five minutes, no prompting except "can you close the lid?" or "is the box shut?" when the child indicates he things he has solved the puzzle, but has not tried to close the box.

If child solves puzzle in less than five minutes, remove the pieces as before, say, "now find another way" and continue scoring. If solution occurs again at the end of five minutes, E says "Good! You've put the puzzle together." And ends the task.

If child does not finish either with finding another way or with the first way, at the end of the five minutes, help him replace the pieces, as follows:

E: Maybe I can help you.

(E replaces all pieces but the boy.)

E: Where does this piece go? Can you put it in so the box will close?

(E picks up the boy and hands it to S)

E: (When child replaces boy)

Good! You've put the puzzle together.

About Observing

1. Be sure to time accurately. Record behaviors only in the time segment where they occur.
2. More than one kind of behavior, verbal and non-verbal, can occur within an observation segment.
3. Never use the lid of the box as a writing surface during the task.
4. Continue timing if child solves the puzzle and is asked to find a new way.
5. The times on the observation schedule indicate the ends of time segments.

Table 1

MSU Puzzle Box Task
All Subjects. Percent of Total Responses Occurring in Each Behavior Category

	Attempt Alone	Destruc. Behav.	Directing Behav.	Emotion. Resp.	Facial Express.	Motor Resp's	No Attempt	Rationalize	Seeking Attent.	Seeking Contact	Seeking Phy.	Help Ment.	Seeking Infor.
ALL SUBJECTS	51.2	.7	.4	3.8	10.3	5.1	10.8	2.1	8.3	0	.3	4.4	2.0

Table 2

MSU Puzzle Box Task
Female vs. Male· Percent of Total Responses Occuring in Each Behavior Category

	Attempt Alone	Destruc. Behav.	Directing Behav.	Emotion. Resp.	Facial Express.	Motor Resp's	No Attempt	Rationalize	Seeking Attent.	Seeking Contact	Seeking Phy.	Help Ment.	Seeking Infor.
FEMALE	49.5	0	0	6.1	8.0	7.6	13.8	3.3	7.1	0	0	4.2	0
MALE	52.6	1.1	.6	2.3	10.2	3.9	8.8	1.6	9.0	0	.4	4.6	4.4

Table 3

MSU Puzzle Box Task
Afro-American vs. Other: Percent of Total Responses Occurring in Each Behavior Category

	Attempt Alone	Destruc. Behav.	Directing Behav.	Emotion. Resp.	Facial Express.	Motor Resp's	No Attempt	Ration-alize	Seeking Attent.	Seeking Contact	Seeking Phy.	Help Ment.	Seeking Infor.
AFRO-AMERICAN	53.9	.7	.7	2.3	15.4	3.6	6.0	1.0	8.1	0	.2	4.1	3.4
CAUCASIAN	47.5	.7	0	6.0	3.0	6.8	17.8	3.8	3.7	0	.3	4.9	0

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The Cincinnati Autonomy Test Battery (CATB)

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Introduction

The CATB subtests consisting of the Curiosity Box Test, Impulsivity, and Persistence are the focus of this section. The introduction to each of these subtests is from the CATB Manual.

Curiosity Box

The pioneering work of Montgomery (1951a, 1951b, and 1952) on the exploratory drive led to the conclusion that "... a novel stimulus situation evokes in an organism an exploratory drive which motivates exploratory behavior" (1953, p. 129). Similar early conclusions were drawn by Harlow (1950), Hebb (1949), and Dashiell (1925). This is the underlying assumption behind each of our own explorations with Task Initiation and the Curiosity Box. Not all preschool children manifest the same degree of exploratory drive, and the reasons for this presence or lack is complexly determined by social anxieties, immaturity, fear of novel stimuli, separation anxiety, and paucity of encounters with what Winnicott (1953) has called "not-me" objects.

From the very start of our own work with young children, we have found variations all the way from complete withdrawal (and consequently no learning through exploration), to thoroughgoing involvement with novel objects such as those represented in these two tests resulting in a rather full and satisfying encounter with the environment.

It is not hard to see how these tendencies relate to the development and maintenance of autonomous functioning of the child. Autonomous, active exploration is an important precursor to later problem-solving strategies. Many helpful naturalistic descriptions of this process are provided in Chapter 2 of Lois Murphy's Widening World of Childhood (Murphy, 1962). The chapter is titled, "Children Encounter Newness." Her first example of a child absorbed by the environment, self-assured, and ready to explore in autonomous ways, was summarized as follows: "Here is a little boy who moved into the new situation warmly and spontaneously, quickly orienting himself by his own alert, widely ranging observation, and supplementing his own grasp by asking questions to clarify things further" (p. 27). We have seen this kind of child in our own testing. He is typically middle or upper class. We also have found many children who do not touch, do not manipulate, and do not visually explore our test materials, although our trained testers have gone to considerable lengths to make the setting comfortable, pleasant, and non-threatening. Most noticeably lacking among lower class children is the important strategy of "asking questions to clarify things further." This is not only a matter of poor verbal ability. More important is the implicit assumption made by the child as to what role the adult plays in relation to his explorations. It is clear that many of our upper class children assume that the adult owes them an explanation or a clarification of the situation and the test materials: "What is this for?"

"Did you make this?" "Will you make one for me?" "What do you do with this thing?" The lower class child typically makes no such assumption and makes little if any effort to get the adult tester to contribute meaning or structure to his own experience.

The task of test construction was to devise standardized procedures and objective scoring methods to describe these differences in approach. Valuable information about the child's approach toward novel objects is gained in a short time. The Task Initiation test takes two minutes, the Curiosity Box takes five minutes of testing.

Motor Impulse Control

Part of autonomous behavior may be characterized by the ability to control and restrain impulsive action, when the task demands it. Such motor impulse control ability is self-regulated -- the autonomous person should be able to use impulse control when appropriate, but not be dominated by generalized inhibition. A good measure has been devised by Hagen & Degerman, and has been used in a study by Maccoby, Dowley, Hagen & Degerman (1965); the findings of this study was one of the reasons the present measure of motor impulse control, the Draw-A-Line-Slowly test, was adopted for the CATB. Maccoby, et al., asked preschool children to draw a line very slowly. This and other measures of inhibition of movement ("walking slowly" and "moving a truck slowly") were found to correlate with Binet IQ scores.

The Binet implicitly requires that the child inhibit impulsive movements and distractions, and thus can be taken as one indication of task-appropriate inhibition. This interpretation is given further support in that a measure of general activity level correlated very nearly zero with the Binet IQ's. Thus the common element in both IQ problem solving and the impulse control measure was task-appropriate inhibition, not generalized inhibition reflected in low activity level. As Maccoby, et al., point out, "The successful problem solver, then, probably does not engage in less total bodily activity over an extended period of time; he merely modulates or regulates his activity, so that expressive activity is inhibited during crucial points of problem-solving where it might constitute an interference ..." (p. 763). This reasoning ties in very closely with the present definition of autonomy as self-regulating behavior which facilitates effective problem solving. Many problems are like the IQ performance, and many more kinds of problems which demand reflectivity, delay of gratification, or inner language and thought require that the person establish inner control before effective solutions are possible.

Persistence

The problem of persistent attention has had a long and interesting history in psychology. An excellent review of the literature was written by Shacter in 1933. In it she argued that deficits in attention account for many problems experienced by school children. Tilson (1929) surveyed seven child guidance clinics in five different cities and listed the types of problems which were referred. Between the ages of one and five, 53 types of problems were identified, and the ninth most frequent was "restlessness" designating instability of attention. The educational import of attention was underlined in 1908 by Burnham and by Tichener. Burnham is quoted by Shacter as stating that, "The development of habits of attention...is quite as important for the prevention, as restoration for the cure, of nervous and mental defects" (p. 528). Tichener, in that same year argued for its general importance for psychology as well as its specific educational relevance: "...the intrinsic tendency of psychology to deal with attention in the large has been further strengthened by the practical importance of attention, its importance of educational regard ... Here, if anywhere, a sound psychology (of attention) might be of immediate service to the responsive teacher" (p. 182).

Comparable enthusiasms for the importance of attention has not been present until recently, when it emerged in another form: the study of observation responses, the orienting reflex, and need for variation in stimulation. Recent research and theory is summarized in Berlyne (1960), Fiske & Maddi (1961), Bakan (1966), Fowler (1965), and most elegantly by the theoretical work of Dember & Earl (1957). Most of this work has been confined to the laboratory, the animal laboratory at that, and no research exists on the outcomes of different educational techniques in relation to children's attention.

The Subtest Descriptions

Curiosity Box Test

The Curiosity Box is placed on the table in front of the child as the tester says "Here is something for you to play with." The tester then takes a seat behind the child, somewhat to the left, so as to improve the observation perspective and to remove obvious social distractions from the range of view of the child.

The tester presents the box in an inviting way, and takes an observation position to the left and behind the child. The observation period is five minutes, unless the child does not explore or manipulate the box within the first three minutes. The termination procedure is as follows: If the child does not touch the box during the first two minutes, the tester says "This is for you to play with," and simultaneously the tester manipulates the chain lock and bolt on the front side of the box. If the child does not touch the box for one minute after the prompt, the Curiosity Box is removed.

The major observational division is between "Activity" and "Verbalization." Under Activity, we have designated a variety of forms of exploratory behaviors, in each .5 minute interval the class of behavior observed is circled. At least one item in the Activity record must be circled in every time period. If two behaviors are related to one another, an additional line is drawn between the circles to indicate that they occurred simultaneously. The "Verbalization" observations will be discussed later in relation to Curiosity Verbalization and Fantasy-Related Verbalization.

Curiosity Box scores are based on observations of (a) manipulatory exploration, (b) tactual exploration, (c) visual exploration, (d) movement--subject, and (e) movement--box. Each of the five categories of exploration is defined specifically in relation to aspects of the box. Manipulatory exploration refers to the child's attempt to move objects or parts of the box -- pulling the bolt back, working door hinge back and forth, opening lid, attempting to turn a screw. Tactual exploration refers to mild forms of "surface exploration" of the box or parts of it, with little or no attempt to move them -- fingering the links of the chain, rubbing the sandpaper strips on the front of the box. Visual exploration is defined in relation to a specified set of behaviors. Not all visual exploration is scored here. Passive, detached observation is excluded. Only obvious behavioral movement is taken as an indication of a visual exploration. The apertures on the left side and on top of the Curiosity Box were designed so that if a child were to look in from a distance of several inches, nothing much could be seen in the designs and pictures appearing in the lighted chamber of the box. Thus the child, if he is to actively explore, must move his head from side to side or circularly in order to scan the designs within the box. More passive visual exploration is not scored, but signs of active visual interest do apply to this category -- looking through hole in door hinge, looking into part of Curiosity Box closed off by a hinged lid, looking in cracks of box.

Movement--subject is scored when the child moves bodily to get in better position to observe or touch or manipulate (see Fig. 2d). The use of the large skeletal muscles in the service of active exploration is interpreted as an indication of good investigative tendencies -- leaning around to see another side better, standing up to look at back of box or see into the box from the top. Movement--box is scored when the child moves, or attempts to move the box in order to see better or in order to get at a part of the box -- sliding the box on the table, tipping it, turning it around.

One point is given for each .5-minute segment in which each of the five categories occurs. If a child were involved in all five types of exploration in every .5-minute observation segment, his total Curiosity Box score would be 50. High scores thus represent active exploratory behavior.

Motor Impulse Control

At the start of the Draw-a-Line-Slowly test the tester gives the child a crayon. The tester takes a crayon of a different color and places an 8½"x 11" paper on the table before the child. The tester says, "I'm going to draw a line real fast." As the tester says "real fast," she draws a line very quickly (toward the child, from top to bottom of the page). The tester then goes on to say, "Now you draw a line real fast -- right here" (showing the child where to begin the line, pointing to the top of the page). The purpose of the fast line is to give meaning to the words "fast" and "slow," by getting the child to make a response, equivalent to the meaning of the words in this context.

The tester turns the paper over and says, "Now watch what I'm going to do." The tester begins to draw a line slowly, and continues talking. "I'm going to draw a line verrry sloowly...very slooowly...just as slooowly as I can." While saying this, the tester does draw a line very slowly; the wording and the pauses in the speech of the tester paces the line drawing at about 20 to 25 seconds for an 8-inch line. This is about twice the time taken by the average child to draw a similar line. To summarize, the slow line is begun by the tester immediately after saying, "Now watch what I am going to do." The drawing of the line ends with the 20-25 second speech.

After drawing this slow line, the tester tells the child, "Now you draw a line just as *slooowly* as you can" (and she shows the child where to begin the line, at the top of the page). The stopwatch is started when the child begins to draw. The time taken to draw the line is recorded in hundredth's of a second. A watch with a re-start mechanism is desirable, since some children lift their crayon, pause, and begin again. These intervals are not timed. The time taken to draw the line is recorded, and a second sheet is presented to the child.

The second slow line sheet, unlike the first has two large X's on it. The X's are made with one-inch crossed lines. The distance between the center of the X's is 8". These X's are helpful in guiding the response of the child, but pretesting has shown that they tend to distract children when present on the training page. Therefore, we have omitted them until the second slow line. At this point, the tester presents the paper with the X's and says, "Now I want you to draw a line from here to here, just as *slooowly* as you can." The tester indicates where the line is to be drawn by slowly running her finger from the top X to the bottom X. The tester then points to the top X and says, "Start here." The line drawn is timed again. The time is recorded.

The tester now presents a third sheet, also designated with two X's. The same instructions are used with the addition, "I want you to draw a line from here to here -- this time *even slooower* than the last time. Start here." The time is recorded.

Since not all children draw a straight line, and not all children draw a line 8" long, the length of line must be taken into account in scoring impulse control. We measure the length of line with a device for calculating distances on maps. The device is calibrated in quarter inches; however, we interpolate the measures in decimal fractions. The impulse control score is calculated as a rate measure -- length of line, divided by time in hundredths of a second; the higher the rate, the lower the motor impulse control.

Persistence

The Replacement Puzzle is an adaptation of a test developed by Keister (1943). Our emphasis is on how involved the child becomes in attaining a solution during a period when no distractions are present other than those inherent in the situation -- furniture, tester, testing equipment. The puzzle can be solved in only one way. The pieces are constructed so that a solution is very improbable in a two-minute period. During these two minutes the child is observed for indications of task-oriented behavior carried out in an independent and persistent fashion. At the two minute mark, the tester introduces four toy blocks with the words, "You may play with these, or you may finish putting the pieces back in flat." For the next minute, the child's persistence is observed, this time with the distractor blocks present.

Our concerns here, as elsewhere in the test battery, are in terms of the structures and dispositions within the child. Some children respond to, and some children ignore the distracting materials. Thus the stimulus cannot account for either attention or distractibility in the present setting, since stimulus factors are held constant for all children. In a sense we are concerned with what one might call "Persistibility-and-Distractibility," which are complementary tendencies and abilities that have developed within the child.

Considerable time is spent by the tester to insure that the child understands the goal of the puzzle so that all children are clear as to what is expected of them. The test scores reflect, then, the way in which the child reacts to a situation demanding attention and resistance to distraction. The autonomous child, one expects, has these elements of self-control in his behavioral repertoire. Such behaviors facilitate a wide variety of effective problem solving strategies.

The puzzle is placed on the testing table. (Later in the procedure the puzzle is rotated 180°, just before the child starts to work). The tester says, "I want you to look at how flat all these pieces fit into this tray. This looks something like a puzzle, but there are spaces between the pieces. (Tester rubs the tray in several different spaces between the figures). Some of these pieces come out. The 'boy' comes out. (Tester lifts the boy out of the tray and holds the piece up before the child.) When we put it back in, it can't rest on another piece. (Tester replaces it in the tray, on top of another piece, so that it is not in flat.) It must lie flat. (Tester puts it in flat.) That's very important. Now you try. (Tester sees to it that the child understands how to put the piece back in flat, correcting the child if necessary.) Now rub your hand across here (across 'boy' and all adjacent pieces) and feel how flat it is."

Words in the above instructions are continuously accompanied by gestures and movements. Most importantly, the child is involved in the instructions -- picking up pieces, replacing them, and rubbing his hand over the surface of the puzzle. "Getting the pieces to lie flat" is the goal of the puzzle, and the child's understanding is mediated by the sensori-motor experience of actually touching the puzzle to verify what "flat" means. Such sensori-motor interpretation of the instructions is necessary.

The instructions continue. "I'm going to take some of the pieces out. (Tester removes "horseshoe" and "boy" placing the horseshoe on top of the boy at the child's left, then removes the "plane" and "pear" placing them in that order on top of the other two pieces. Tester now rotates the tray 180°). Now you put the pieces back into the tray."

At this point the stopwatch is started and recording is begun; observations are recorded every one-third minute. Prompting is permissible, but must always be limited to the words, "Put all the pieces in flat," in response to requests for help, wandering away from task, looking up as if finished, or requesting approval.

Occasionally a child completes the puzzle within the two minute limit. The pieces are removed, and the tester says, "Put them back in again for me." The scoring is continued as before.

In every .33-minute segment, all items which describe the child's behavior are circled. At least one item will be circled in every time segment. If two categories appear simultaneously (e.g., the child uses the distractor blocks *in* the puzzle frame) tie the two circles together with a line. This occurs only with non-goal-directed activity.

The Persistence score is based on the first two minutes of activity. During the first two minutes, goal-directed behavior is scored two points for each .33-minute period; while non-goal-directed behavior and other behavior is scored minus one point for each .33-minute period it appears. With six .33-minute periods, the maximum score is 12 (all goal-directed activity, no non-goal-directed or other activity); and the minimum score obtainable is -12 (no goal-directed activity, and all non-goal-directed activity).

Established reliability and validity data for the subtests. The coefficients are based on data from over 300 children from lower class as well as upper class areas of Cincinnati. All children were between three and six years, and almost all reliabilities reported were derived from lower class Negro children's responses. The data are based on six studies, done over a two-year period; thus we typically have more than one estimate of each reliability for each test. This is an important feature of our research strategy, since assessing reliability with different groups under different conditions, and at different times of the year, with different testers, insures that our reliability estimates are not an artifact of special test conditions, a particular tester, or unique populations of children.

For the reliability data see Table 3.

For the validity data see the CATB subtest intercorrelations in Table 4.

Relative to the Curiosity Box. Curiosity Box, Task Initiation, and Curiosity Box Verbalization scores showed good convergent validity; these were the highest correlations for Curiosity Box also. Close behind, however, was the highly significant relation to the Social Competence

Rating (.37). It is evident that the child, in this situation, is permitted to express social skills and social needs, even though the tester is seated behind the child and offers no reward for social interaction. Thus the tester is given greater opportunity to observe the child's social skills on this test than on others where social skills are "submerged," as it were, in the task at hand.

Both Curiosity measures correlated well with one another (convergent validity) and relatively lower with other measures in the test battery (discriminant validity). Thus it appears that curiosity behavior at this age level does not facilitate solutions to problems that demand impulse control and sustained attention.

Impulse control ... entered into the performance of a number of CATB variables. In order of magnitude of relationship, they are: Intentional Learning (.31), Kindergarten Prognosis (.31), and Persistence (.28), all at the .01 level; and Resistance to Distraction (.27), Task Competence Ratings (.25), and Innovative Behavior (.23), all at the .05 level. Social Competence correlated only .17, showing evidence for discriminant validity for this highly task-oriented test. These findings taken together, suggest that Impulse Control is an important developmenta variable affecting a variety of behaviors relevant to problem-solving ability.

Persistence scores ... showed a very high relation to Task Competen (.45), as would be expected. This is given good discriminant validity support in that Social Competence was unrelated to the Persistence score (-.06). In addition, Kindergarten Prognosis, while correlating at the

.05 level (.26), was not as high as the directly relevant Task Competence ratings.

The correlations with EC-EFT (.28) and Impulse Control (.28), significant at the .01 level, are consistent with the idea that both these measures involve persistent task-oriented behaviors. By contrast, variables not involving these kinds of behaviors did not show significant correlations with the Persistence measures: Curiosity, Innovative Behavior, and Social Competence. This picture of good discriminant validity as well as good convergent validity is somewhat marred by the low and non-significant correlations with Intentional and Incidental Learning. However, these two tests have validity problems of their own which were discussed above, and should probably not be weighed heavily in the validity evaluation of the present test.

Field Testing

Subjects. Each of the CATB subtests of interest were administered to the same population. They were drawn from 4 midwest urban Head Start Project classes. At the time of testing the 57 subjects ranged in age from 30 to 72 months. There were 30 males and 27 females, and they were distributed ethnically as follows: 25 Afro-American, 7 Mexican-American and 25 others, including Anglo-Americans. Fourteen of the subjects were classified as "advantaged" and 43 were classified as disadvantaged.

Testers. Two MSU E&R Center staff members administered the subtests They were experienced testers, with extensive training in the use of the CATB.

Field Test Results. The results pertinent to each subtest will be presented separately. In all cases, the data was gathered in order to obtain more detailed information about the test than has been available in the past.

Curiosity Box. Total scores on each of the subcategories within the observation schedule were examined. See Table 1 for descriptions of the means, ranges, and standard deviations of these scores across all subjects.

There is a definite positive skew visible in over ½ the data, as evidenced by the relation between the mean and standard deviation. This suggests that a discussion of the individual rating categories might be meaningful only under nonparametric or data transformation conditions. The narrow possible range suggests that the data are likely to be most informative when taken in larger pieces, such as the total for activity and the total for verbalization, as Banta has already done. In terms of types of exploratory behavior displayed by all subjects, most exploration was manipulatory, accounting for about 57 percent of the total exploratory behavior.

Total verbalization can be broken into four subtotals: task-related questions, non-task-related questions, task and non-task related fantasy. Considered for all subjects, the most frequently used category was task-related questions, accounting for about 71 percent of the total verbalization behavior.

Within the field test sample, there were significant differences between younger (30-52 months) and older (53-72 months) subjects on the amount of curiosity box movement and total verbalization. Concerning box movement, the younger subjects tended to move the box much more than did the older ones, ($F_{1,54} = 5.996$, $p \leq .02$). Younger subjects also exhibited a higher total amount of verbalization ($F_{1,54} = 7.69$, $p \leq .01$).

Comparing subsample ethnic groups, there was a significant difference in the amount of visual exploration displayed by Afro-Americans and other subjects. Afro-American subjects showed more visual exploration than did the others ($F_{1,55} = 4.525$, $p \leq .05$).

Motor Impulse Control: The data from the impulse control subtest can be subdivided into drawing rates for 3 lines. Such data was available from the field test subjects, but was not analyzed due to the skewness of the data and its proportional nature. Consideration of the overall measure of rate provided in the subtest (Total line length in inches divided by total time in hundredths of a minute) showed this to be suffering from extreme positive skewness also. The mean rate for field test subjects was .75 inches per .01 minute and the standard deviation was .9587. Skewness combined with proportion raw data suggests the use of non-parametrics and/or a data transformation. Future analyses should take note of this fact.

A comparison between the Banta norming data and the field test data shows that the field test data is much more skewed, and the level of impulse control is lower, .75/.01 min as compared to .69/.01 minute for the Banta norm sample.

Persistence. Persistence is measured during the first two minutes of the puzzle board subtest. The total persistence measure can be broken down into puzzle goal-directed and non-goal-directed activity and other activity. Verbal behavior total and subtotals are available only for the entire 3 minute task, and while it is not clear just where the verbalization occurred, the total and subtotals have been analyzed.

The distribution of total and subtotal scores are presented in Table 2. A distinct positive skew is present in over half of the data, as is evidenced by the mean-standard deviation relationship. The existence of this skew in subtotal scores calls into question their further usefulness for data analysis purposes. Inspection of the CATB norm data for "total persistence" indicates a very close agreement between it and that obtained in the field test sample. (Field test: $\bar{X} = 20.41$, SD = 3.91; norm data: $\bar{X} = 20.70$; SD = 4.02).

Comparing various subsamples of the field test group yielded little information. Comparisons on the basis ethnic group membership, sex, age and socioeconomic status for all scores related to persistence yielded one significant result. Older children (58-72 months old) tended to show more goal-directed behavior than the younger children ($F_{1,53} = 4.05$, $p \leq .05$). The lack of subsample differences might have been due to the extreme skewness of much of the data, which makes parametric comparisons questionable.

Reliability and validity. Reliability and validity data for these CATB subtests in the field test sample are unavailable due to restricted testing time.

In summary. The purpose of field testing these three subtests was to ascertain the usefulness of more detailed information about them, beyond just a general total score. The very skewed data obtained in most cases definitely limits their usefulness in parametric analyses. It is possible however to gain considerable information through the use of descriptive, rather than inferential statistics. This possibility deserves close examination before the more detailed information is eliminated from consideration.

TABLE 1

Curiosity Box, Distribution of Total Scores

by Observation Category.

Category	Possible range of scores	$\overline{X}$	SD
1. Manipulatory explor.	0-10	7.19	3.74
2. Tactile explor.	0-10	2.51	2.35
3. Vis explor.	0-10	2.93	2.68
4. Movement-Subject	0-10	3.81	3.17
5. Movement-box	0-10	.96	1.92
6. Box-related activity (sum of No. 1 - No. 5)	0-50	17.38	10.62
7. Other activity	0-10	2.75	2.94
8. Task-related questions	0-10	2.23	4.25
9. Task-related fantasy	0-10	.38	1.32
10. Non-task-related questions	0-10	.46	1.22
11. Non-task-related fantasy	0-10	.09	.28
12. Verbalization (sum of No. 8 - No. 11)	0-40	2.70	3.77

N = 55

TABLE 2

Puzzle Board Persistence Task, Score Distribution of Total Scores by Observation Category.

Category	Possible range of scores	$\bar{X}$	SD
1. Goal-directed activity	0-12	10.57	2.49
2. Non-goal-directed activity	0-6	1.54	1.62
3. Other activity	0-6	.66	1.05
4. Total persistence	0-24	20.41	3.91
(No. 1 - No. 2 - No. 3 + 12)			
5. Task-related questions	0-9	2.39	2.42
6. Task-related fantasy	0-9	.46	1.03
7. Non-task-related questions	0-9	.43	.97
8. Non-task-related fantasy	0-9	.09	.48

N = 56

TABLE 3

Summary of CATB Reliability Coefficients

Test	Test-retest reliability coefficients N	Test-retest reliability coefficients r	Internal consistency reliability coefficients N	Internal consistency reliability coefficients r	Inter-rater reliability coefficients N	Inter-rater reliability coefficients r
Curiosity						
Curiosity Box	Not available		83	.91**c	--	--
Task Initiation	33	.76**a	--f	--f	--	.96**
Puzzle Boards	Not available		27	.77**c	--	--
Impulse Control						
Draw-a-line-slowly	33	.43*b	32	.72,.66,.69**d	30	.90**
	33	.41*a	74	.55,.47,.80**d		
Persistence						
Replacement Puzzle	Not available		84	.33**c	--	--

---

[a] One-month test-retest interval.

[b] Two-month test-retest interval.

[c] Odd-numbered time intervals vs. even-numbered time intervals.

[d] Correlations among the three lines drawn. Correlations presented in following order: line 1 vs. line 2, line 1 vs. line 3, and line 2 vs. line 3.

* Significant beyond the .05 level. **Significant beyond the .01 level.

TABLE 4

Product-Moment Correlations Among Fourteen CATB Variables

	1 Task Init.	2 Cur. Box	3 Dog Bone	4 EC-EFT	5 Imp. Cont.	6 Int. Learn.	7 Inc. Learn.	8 Persist.	9 Resist. Distract.	10 Task Comp.	11 Soc. Comp.	12 Kind. Prog.	13 Cur. Vert.
1. Curiosity: Task Initiation	--												
2. Curiosity: Curiosity Box	39**	--											
3. Innovative Behavior: Dog and Bone Test	06	11	--										
4. Field Independence: EC-EFT	13	04	21	--									
5. Impulse Control: Draw-a-line-Slowly	-16	-01	23*	07	--								
6. Intentional Learning	-22*	16	33**	07	31**	--							
7. Incidental Learning	-03	-01	11	09	12	45**	--						
8. Persistence	-12	-03	06	28*	28*	15	-18	--					
9. Resistance to Distraction	-11	-20	-18	25*	27*	-04	-09	07	--				
10. Task Competence Ratings	24*	-05	10	52**	25*	27*	19	45**	51**	--			
11. Social Competence Ratings	02	37**	26*	27*	17	22*	25*	-06	00	44**	--		
12. Kindergarten Prognosis Rating	-13	22*	18	31**	31**	27*	33**	26*	23*	71**	70**	--	
13. Curiosity Verbalization	52**	48**	-01	14	05	-06	06	-20	-14	-01	53**	23*	--
14. Fantasy-Related Verbalization	34**	31**	10	10	-03	-07	-03	-14	-16	-06	38**	08	55**

Note.--Decimal points have been omitted. N's are based on all available data. Eighty-four children were included in the study, but due to the fact that not all test scores were available for every child, N's varied from 79 to 84.

* Significant beyond the .05 level. ** Significant beyond the .01 level.

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The Mischel Technique

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Introduction

The focus of this instrument is the willingness or ability to delay rewards, to defer immediate reinforcement for the sake of later but more valued outcomes.

Mischel (1961) notes, "Numerous nonexperimental references have been made to the importance of tolerance or perference for delayed rewards, and the necessity for reward delay in a multitude of complex human situations has long been recognized: it is reflected in such theoretical formulations as (Freud's) 'pleasure principle' and (his) 'reality principle.' 'Psychopathy,' immaturity, and criminal and neurotic behavior have been seen as at least partially explicable in terms of the inability to postpone immediate gratification for the sake of delayed rewards..." Mischel goes on to consider a number of studies which have looked at "delay capacity" as inferred from the Rorschach and its behavioral correlates such as planfulness and intelligence.

In Mischel's own studies of the delay of gratification, the choice of immediate vs. delayed gratification is considered to be primarily a function of the subject's expectancies concerning the reinforcement consequences of either choice and the reinforcement values of those consequences in a particular situation. He has found preference for delay of gratification, as considered above, to be negatively related to delinquent behavior and slightly positively related to social responsibility, for 12 to 14 year olds (1961). He also found it positively related to age and intelligence, and negatively related to length of delay interval for Ss 5-12 (1962). The latter finding is some support for the assumption that reward preference is partially a function of the subject's expectancies.

Mendell (1967) studied the relationship between delay of gratification and achievement in nursery school children. He found preference for delayed reward related to high achievement, and to S's belief in success on an achievement task. This suggests that the ability to delay develops most readily when the child's previous experience is positive.

Given this evidence plus the general observation the "disadvantaged" children are depressed in the ability or at least the willingness to postpone gratification, makes it an appropriate variable of change to be considered for assessment in a Head Start program.

Mischel Technique

The Mischel Technique has been developed for use with 3½ to 8 year olds; it is an individual test lasting from 2 to 5 minutes. The substance of the technique consists of showing the child two rewards, and telling him to choose the smaller one he can have or the larger one he can have at some later specified time.

Educational Testing Service has developed the testing format seen on page 152 for use with preschool aged children.

Field Testing

Subjects. The 39 subjects were drawn from 3 classes in an urban midwest Head Start program. They ranged in age from 52 to 68 months at the time of testing. Ethnically, there were 6 Spanish-Americans, 23 Afro-Americans, 9 Caucasians and an American Indian. There were 17 females and 22 males.

Testers. Three staff members of the MSU E&R Center functioned as testers. They were trained in the use of the technique, and all testers had experience in working with children. Two of the testers accounted for the data from 32 subjects, the third tester gathered data from the other 7 subjects.

Method. The ETS testing format (see page 152), was used with 1¢ and 5¢ Tootsie Rolls as stimuli. This candy was selected because it is readil available in the two distinct sizes; it is wrapped for ease of handling; and it is usually familiar and appealing to young children.

Field test results. Over all subjects, 56% chose the delayed reward. Anecdotal records show they were continually asking the tester for reassurance that they would get the large piece of candy, whenever the tester was in the classroom. Apparently for many subjects it was helpful in bridging the time span to have verbal acknowledgment that they would not be forgotten.

When the subject is given the large piece of candy, he is asked to repeat what he had been told regarding when he would receive the reward. Responses to this were almost uniformly lacking. The children obviously remembered what they had been told for they frequently reminded the tester of their reward, but when asked out right they did not respond.

The testers also found it somewhat difficult to make it very clear to the subject that he could have only one piece of candy. Perhaps some alteration in instructions, stressing that point more clearly and strongly would alleviate the problem.

Chi^2 comparisons between subsamples of Afro-Americans and others; males and females and the between age groups 52-57 months and 58-68 months showed no significant differences. (See table 1) There was a tendency for a higher percentage of males to delay and for a higher percentage of younger children to delay.

MISCHEL (DELAYED REWARD)

Name:____________________________

I.D. #____________________________ Examiner I.D.#________ Date_________

SINCE YOU'VE BEEN A GOOD BOY (GIRL), I WOULD LIKE TO GIVE YOU SOME CANDY. (Show one of each size.) ONE OF THESE HAS MORE TO EAT. SHOW ME THE BIG ONE WITH MORE TO EAT.

__________Correct __________Incorrect

I DON'T HAVE ENOUGH OF THESE BIG ONES WITH ME NOW SO I CAN'T GIVE IT TO YOU NOW. BUT I DO HAVE A LITTLE ONE. YOU CAN EITHER HAVE THIS LITTLE ONE (point) RIGHT NOW, OR IF YOU WANT, I WILL GIVE A BIG ONE LIKE THIS (point) AND GIVE IT TO YOU WHEN IT'S TIME FOR YOU TO GO HOME. WHICH WOULD YOU LIKE? WOULD YOU LIKE THIS LITTLE ONE RIGHT NOW, OR WOULD YOU LIKE TO WAIT UNTIL TIME TO GO HOME AND HAVE THE BIG ONE? (Repeat or reword as necessary to make sure the child is aware of the choice. Do not, however, try to talk him out of any choice he makes.)

____________Picks small now

____________Picks big later

WHY DID YOU PICK THAT?

____

____

(At time big candy is given to the child):

DO YOU REMEMBER WHAT I TOLD YOU? WHAT DID I SAY?

____

____

Special Comment:
(If says wants big one now):

I CAN'T GIVE YOU THIS ONE BECAUSE IT BELONGS TO SOMEBODY ELSE. I'LL GET ONE JUST LIKE IT FOR YOU IF YOU WANT TO WAIT UNTIL IT'S TIME TO GO HOME. NOW, YOU CAN EITHER HAVE THIS LITTLE ONE RIGHT NOW, OR IF YOU WAIT, I WILL GET A BIG ONE AND GIVE IT TO YOU WHEN IT's TIME FOR YOU TO GO HOME.

Table 1

Mischel Technique,
Frequency of Delay within Field Test Subgroups.

	% delaying	N	X_1^2
Afro-American	52	23	.431 NS*
Other	62	16	
Male	64	22	1.073 NS*
Female	47	17	
Age 52-57 mo.	68	19	2.17 NS*
58-68 mo.	45	20	
All subjects	56	39	

* Not significant at $p = .05$.

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The Play Situation-Picture Board Sociometric Technique

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Introduction

The Play Situation-Picture Board Sociometric technique has been developed specifically for preschool age children. It was under development during the 1967-68 Head Start evaluation, and these results were used to develop the technique which is being used in the 1968-69 Head Start evaluation.

The child's ability to relate effectively to others in his peer group is a significant variable in early social development, and has been shown to be related to subsequent interaction and social adjustment. As Moore (1967) points out, systematic study of nursery school children has indicated the presence of a "snowball effect of maladaptive or anti-social behavior." A child who initially is unable to socialize effectively is in turn ignored or rejected, and in the interim may adopt aggressive coping mechanisms or withdraw further from social interaction. Increased knowledge of socialization patterns within Head Start classes would, therefore, seem to be helpful in understanding the behavior and behavior change of these children. Even though there has been some discussion concerning the merit of Sociometric techniques with preschool children, concern for more information about early childhood peer interaction and socialization behavior has prompted the national director of Head Start evaluation to advise the gathering of these data.

The jump from the conceptual to the methodological in this area is not an easy one, however. Peer group acceptance or rejection within preschool groups has been studied in a variety of ways, with what in all fairness might be termed "limited" success. Systematic observation of the reception children receive from others, as well as the many other indicators of peer status, is one technique that has been used successfully. Sociometric devices of various kinds have also been employed. However, early attempts at sociometric analysis with preschool children were discouraging (Moore, 1967). The major factors confounding the use of these techniques seem to be: (a) the young child's limited ability to understand adult communication of complex associative tasks and to communicate a response adequately, (b) the inability of children at this age to focus upon the entire peer group within the "mind's eye" and to make conceptual choices based on this relatively complex cognitive task, (c) the particular difficulty in obtaining adequate responses to negatively oriented sociometric questions and (d) the limited attention span of this age child.

On the basis of these limitations, it would appear that the reliability and validity of lengthy paired-comparison techniques, or verbal "guess-who" approaches, would be suspect. As a qualitative supplement to the time-sampling observation of the child-child interactions being used in the core as well as the cluster evaluation, it is suggested that an adaptation of the picture-board approach devised by McCandless and Marshall (1957) be employed. This method is particularly well suited to our situation in light of the decision to employ the Brown (1966) procedure for assessing self-concept, since this procedure also necessitates the use of a picture image of the child. The child will be photographed with a Polaroid camera, and the resulting picture immediately discussed with him. This process of establishing the immediate connection between the picture-image and the child himself is doubly important in light of Sigel's recently reported research (Sigel-Olmsted, 1966) in which differential patterns of recognition were obtained from children in response to pictures of objects and the objects themselves. The immediate connection between the child and his photograph at that time, which is provided through the use of a Polaroid, should provide for some degree of compensation.

In the picture-board technique, the pictures of all of the children in the group are placed on a piece of white fiberboard and positioned in front of the child. The E thus conducts the sociometric interview with the aid of a head and shoulders photograph of each child in the group (Marshall, 1967). Prior to beginning the sociometric questioning, S is aided by the E to identify the picture of each group member. In the original procedure, the child responds to sociometric questions by pointing to the picture or naming the child selected. (The reader is referred to the June, 1957, issue of Child Development (Vol. 28, pp. 139-147) for a detailed description of this technique. Others, particularly at the University of Minnesota, have replicated this work and further testified to the validity and reliability of this approach (Moore, 1967).

The difficulty with gaining adequate communication of sociometric choices, even with the aid of photographs, however, is not overcome with this procedure. The fathers of all but two of the forty-eight children in the original work (McCandless & Marshall, 1957) were occupationally at the professional or business-managerial level. The communication problem with children from disadvantaged environments is seen to be much more acute.

An adaptation of this technique to utilize pictures of toys and play situations is therefore suggested. A set of five stimulus pictures would be used, portraying play situations and play activities. The five pictures of play situations would be presented to S, and S would be asked to select the three play situations he prefers. These would then be presented to S (in the order of his preferences for the activities) with his own picture attached in an appropriate position in the picture (for example above one of two ponies). S would then be asked to select from photographs of his peers the picture of the child he would most like to play with in the activity portrayed. His actual behavioral response in selecting a picture from the group (to place on the other pony in the picture, to continue for example) would provide his sociometric choice response. This procedure would be repeated for each of the three situations selected.

Play Situation-Picture Board Sociometric

Materials and Procedures

Each child is photographed in full front pose. These photographs should be taken of the entire class just prior to gathering the Sociometric data. It is important that a time for gathering this data be chosen such that if possible all of the children are present in the class. The pictures of the children are mounted on white fiberboard (approximately 2 ft. by 2 ft.) in four rows of four photos, equally spaced. (If classes vary in size to necessitate change from this, the spacing and margins should be kept approximately the same (equal). Procedures for attaching the photographs to the board are being experimented with presently. The board is positioned such that it stands alone or in a near-vertical position on a child-size table where S and E sit.

Possible effects of the placement of photographs on the board will be controlled thusly: Each class will be divided at random into two groups. Each of the two groups will view different random arrangements of pictures on the board. The arrangements will be reversed in post-testing.

It is assumed that each E is familiar with the children and should have spent enough time with the class roster and pictures to be able to help the S identify each photo on the board without referring to class lists or other aids. This familiarization procedure in which the E discusses each photo with the S is extremely important and should be done systematically in such a way as to not inadvertently leave certain childrens' names or pictures out of the familiarization procedure.

When the "choice-session" begins E places the board so that it is directly in front of S. (the bottom of the board resting on a low-level table with the center of the board approximately 15" from the child). S's are first asked to find their own picture. S's should then, or after a little prompting, point to other children or name other children to whose picture E then can point. E controls pointing or naming only to the extent of making sure that all pictures are pointed at and named before requesting any choices.

Following this S is told the following:

"We're going to play a game using some pictures. Here are some pictures of things to play with, I want you to look at each one and pick out those you would like to play with the most."

E then goes through the Five dual-play pictures (see page) one at a time naming and describing each toy or situation. Encourage the child to enter in.

Then say: "Which one would you like to play with most?" Let the child spread them out on the floor or manipulate them in any other way he wishes; but encourage him to peruse the pictures and select one.

Then say: "Which others would you like to play with?" Continue this until he has selected three of five pictures. (If a child refuses to choose three, go ahead with the sociometric choice items with the pictures he has chosen and then come back to the selective process, spreading the remaining pictures out on the table or the floor and again encouraging S to choose the remaining play situations.)

Take the selected situations and in the order of choice (i.e., first choice first) and say: "Now here is how we play the rest of the game. You said you would like to play with these, so we'll put your picture here."

E takes S's picture from the choice board and attaches it to the picture. (For example, if the picture is of two ponies, then S's photograph would be placed above one.) Then say: "Who would you like to have play with you?" If the child responds completely, say no more. If the child responds by pointing or by name, encourage him to find and put the picture on the play card as you did his. If he does not respond at all, say: "Look here at the pictures -- who would you like to play with you on__________________?" (Fill in the name of the play situation: i.e. the ponies). The E replaces the photo(s) selected by S after each play situation.

It goes without saying that after the child's selection on each play situation the selected peer's picture and the child's is returned to the board prior to the next selection.

Recording and Scoring

The following instructions apply to the attached record form (see page 168).

1. Each play situation card will be coded with Roman numerals IA or IB through V and so marked on the reverse side of the card. Please use these numerals in noting card selections.
2. Each child's photograph should be coded with his Head Start code number (on the reverse side) at the time the pictures are taken. The peer choice code can then be recorded in each case by turning over the photo and copying the number in the appropriate blank.
3. Voluntary versus non-voluntary responses will be recorded according to the following standard. If a child responds to a sociometric question (in the play situation section, this would include the statement, "Look here at the pictures, etc.") verbally, by pointing or by selecting a photograph voluntarily

without further probing or urging, his response is scored as voluntary. Any response gained through further prompting or probing is scored as "urged." Please check one or the other for each sociometric question posed.

Field Testing

Since this instrument is a part of the current Head Start evaluation, data on its performance will soon be available. Field testing of the sociometric was omitted as it would only duplicate the evaluation efforts. The following is a report of the reliability-validity study of the instrument prior to its recent alterations. It is recommended that a similar study be carried out on the new technique.

Reliability

Several concepts of test-retest reliability were used in examining the Sociometric. First, we examined the degree to which the results obtained were different from the results which might be obtained if the children were making selections merely at random. Second and perhaps more meaningful was the question of congruence between the first and second testings, that is, the degree to which the first testing provides a "best estimate" of the results that would be obtained on another testing. In other words, this second form of reliability could be viewed as an index of reproducibility between the two testing occasions. In many cases it was found that the instrument's reliability was upheld in the first type of analysis but not in the second.

Reliability of peer choices is the extent to which the child made the same peer choice on two occasions. For example, on the first section of the test, in which pictures of favorite activities are chosen and peers are chosen to share those activities, the following data from child X might have been obtained:

	Peer chosen on first testing	Peer chosen on second testing
First picture selected	Al	Bea
Second " "	Bea	Al
Third " "	Carol	Fred
Fourth " "	Dave	George
Fifth " "	Ed	Carol

In this example, the child has made three same choices or "matches" in the two testings. The reproducibility is .30 or 30%.

Analyses for all three sections of the instrument (picture choices, best liked, least liked) were performed using the Kolmogorov-Smirnov one-sample test, which compares the children's choices over the three weeks with the results that would be obtained if the children were choosing peers solely by chance. Results of this analysis ranged from $P \leq .01$ to nonsignificance with several groups on the picture choice section of the sociometric and $P \leq .05$ to nonsignificant on the "best liked" section and the "least liked" section. In all cases again the reproducibilities were quite low. It was concluded that inconsistency of choices may be related to the middle-class value of "getting along with everyone." Middle-class children and Head Start children who through the year have been "socialized" toward this value, might have many friends and might easily choose different friends on the two testing occasions, while lower-class (i.e. beginning Head Start) children might have a smaller range of friendships and so would exhibit more consistencies over time.

Reliabilities over a shorter period of time than three weeks were clearly called for by the mixed results reported above. In three classes the sociometric was administered two days in succession and reproducibilities were calculated for all three sections of the instrument. The overall reproducibilities of peer choices are presented in Table 1; the reproducibilities of first through fifth choices of peers are presented in Table 2.

Reliability of picture selection is the extent to which the child is behaving purposefully in his choice of play-situation pictures or is choosing the pictures at random. The children's choices on two occasions, separated by a three-week interval, were examined for the degree to which the same five pictures were chosen from among the ten offered (see manual of directions). For two classes in which the retesting was done, the mean "matches," or same pictures chosen, were 2.25 and 2.20. While the Kolmogorov-Smirnov test demonstrated these both to be different from chance at $P \leq .01$, the 44% reproducibility between the two testings is not high enough to fulfill the basic assumption of high reliability, i.e. that the results of one testing are a good estimate of the results of the next.

Another analysis of picture choice consistency was undertaken, in this case examining only the child's first picture choice, under the hypothesis that the first choice would be the strongest and likely to be the most pervasive over time. The binomial test was used; the two probabilities were .002 and .165 of obtaining the observed results merely by chance. However, these probabilities reflect only 6 of 17 and 3 of 15 children making the same first choice on both occasions, or reproducibilities of .35 and .20.

Conclusions regarding reliability. The multitude of test-retest analyses presented above point to the general conclusion that the picture-situation sociometric instrument does not give stable measurement over time. The issue must be raised, however, of the stability of the underlying construct. It is quite likely that young children's peer preferences are very changeable, and that reliable measurement is an irrelevancy. If this is the case, then reliability is not so much the issue as is validity.

Validity

Concurrent validity was the major focus of analysis; it seems particularly critical in the light of the conclusion offered above.

Correlations of number of times chosen with teachers' rankings of popularity were calculated for several Head Start classes. The results appear in Table 3. It is apparent in this analysis that the instrument and the teachers are not measuring the same construct. On further thought about asking teachers to make such judgments as these, and about these four teachers in particular, it became clear that so many teacher biases and misperceptions could enter into teacher rankings that this standard for establishing validity is not appropriate. For example, the teacher in class 4 is a substitute and quite obviously does not like or care for children (uses rule to rap knuckles, etc.); one would hardly expect her to be sensitive to children's subtle likes and dislikes in their interactions. In class 3 the teacher's rankings reflected her fervent wish that two or three minority-group children were more actively integrated into the class activities, but the fact in the class is that the children are indeed isolated, in part by language problems. Such observations as these led to other approaches to validity.

Correlations between children's popularity on the sociometric and number of times initiated to on the Kansas Social Interaction Observation Procedure (SIOP) were calculated as a second concurrent validity analysis. The correlations were again very low and some were negative. However, these Sociometric and Kansas data were collected at time intervals of roughly two to three weeks; considering the reliability conclusions presented above, there should be no surprise in these low validity coefficients.

PLAY SITUATION CARDS

I-A	Dolls
I-B	Trucks
II	Sandbox
III	Horses
IV	Dual Swing
V	Teeter Totter

PLAY SITUATION -- PICTURE BOARD

SOCIOMETRIC

Record Form

Child's Name____________________________ Child's Code No.__________

Head Start Center________________________ Date_____________________

Play Situation		Voluntary Response or "Urged" Response (check one)	
1st card selected__________	1st response______	________	_______
2nd card selected__________	1st response______	________	________
3rd card selected__________	1st response______	________	________

Table 1

Reproducibilities of Peer Choices: Two-Day Interval

	Picture Situation	Best Liked	Least Liked
School 1	.58	.61	.33
School 2	.55	.53	.43
School 3	.64	.45	.42

Table 2

Reproducibilities of Individual Peer Choices: Two-Day Interval

I. Picture Situations

	First Picture	Second Picture	Third Picture	Fourth Picture	Fifth Picture
School 1	.63	.63	.36	.27	.18
School 2	.50	.30	.30	.40	.30
School 3	.66	.25	.17	.25	.25

II. Best Liked

	First Choice	Second Choice	Third Choice
School 1	.36	.09	.20
School 2	.40	.20	.10
School 3	.33	.33	.25

III. Least Liked

	First Choice	Second Choice	Third Choice
School 1	.36	.20	.22
School 2	.25	.00	.12
School 3	.25	.08	.00

Table 3

Correlations Between Sociometric and Teacher's Rankings of Children's Popularity

	Sociometric Subtest		
	Picture Situation	Best Liked	Least Liked
Head Start Class 1	.37	.48	-.78
Head Start Class 2	.41	.14	-.43
Head Start Class 3	.68	.73	-.43
Head Start Class 4	.32	.11	.00

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